An Intervention to Increase Participation in Lifelong Learning Through University Programme Webpages

Helen Habakuk

Institute of Psychology, Faculty of Social Sciences, University of Tartu

227502: Applied Behavioural Science Programme

Alan Voodla, MA

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Tänusõnad ehk magistritöö kirjutamise COM-B

Otsus Rakendusliku käitumisteaduse (RKT) erialale tulla oli juhuslik. Piisas vaid sellest, et mainisin õele, et peaks ehk magistrisse minema, tema vastas, et vaata RKT programmi ja nii ta läks. Aitäh, Ave selle sisuka vestluse eest.

Antud töö raames pidin RTK programmi veebilehte lahkama peensusteni ning avastasin, et mulle lubati, et see programm peaks aitama käitumise muutumist mõjutavat töörolli mõtestatumalt ja tõhusamalt täita. Lubadusest peeti täielikult kinni. Aitäh, Andero Uusberg ja kaasamõtlejad selle võimaluse eest olla enda suhtes nõudlik ning omandada teadmisi, mis on nii vajalikud loomaks keskkonda, kus inimestel on lihtsam kasvada iseenda parimaks versiooniks. Selle programmi suur väärtus ning siia sattumise juhuslikkus andiski alloleva motivatsiooni antud töö kirjutamiseks.

Motivatsiooni aitasid säilitada sõbrad ja pereliikmed, kes olid hämmastavalt joondunud minu eesmärkidele ning osalesid esialgsetes pilootuuringutes, pikkades haridusteemalistes telefonikõnedes ning hoolitsesid selle eest, et ma sööks, magaks ning trenni teeks. Aitäh, ma tunnen, et olen väga hoitud.

Motivatsioon oli olemas situatsioonist ja perest, võimalus oli olemas RKT programmi näol ning mu juhendaja Alan Voodla ülesandeks jäi tekitada minus magistritöö kirjutamise oskus. Hetkel, kui nägin, et Alan saab aru, et tegemist ei ole kirjutamise või mõtlemise protsessiga, vaid aktiivse probleemi lahendamise protsessiga, tekkis arusaam, et nüüd või mitte kunagi ja panin jalad tööle. Ainult selles mikrokliimas, kus (1) kõik, mis aitab õppimisele kaasa, on lubatud, isegi 100+ seosetu meili saatmine (vabandust!), (2) teekond on jagatud väikesteks *mõistlikeks* eesmärkideks (3) juhendaja on aktiivselt kohal peegeldades mõttekäike ning valetades läbivalt (!), et “ainult üks väike samm veel”, on võimalik lahendada nii keerulisi probleeme nagu magistritöö endast kujutab. Antud töö tulemustest kumab samuti läbi, kui oluline oluline on keskkonda disainides teadvustada, et inimesed suudavad edukalt

probleeme lahendada, kui nende probleemilahendamise protsess on toestatud. Tänu sellele koostööle omandasin uued mõttemustrid ning avastasin endas oskuseid, mille olemasolust polnud mul halli aimugi. See on väga suur asi. Alan, aitäh, aitäh, aitäh.

Teadvustan, et selle töö taga on tohutult tunde inimeste poolt, kes teadlikult pühendasid aega selle olulise teekonna toestamiseks ja toetamiseks. Nüüd oleks minust ju kena, kui võtaksin vastutuse ja rakendaksin neid teadmisi ühiskondlikult kasulikul viisil. Kahjuks aga on alust arvata, et ülehomme tuleb mul mõte hakata klaverimängijaks ning veedan järgmised kaks aastat vaadates YouTubest klaverimängu algkursuste videosid. Seega kasutan võimalust ja luban avalikult, et pühendun edaspidi trasformatiivse hariduse kättesaadavamaks tegemisele kasutades käitumisteadusest inspireeritud sekkumistehnikaid, tilgutades vett kivile kuniks ühiskonda on uuristunud selgem arusaam elukestva õppe omadustest ja väärtusest. Ma väga loodan, et see tehnika töötab ja keegi ei pea mu klaverikontsertidele tulema.

Helen.

Lühikokkuvõte

Ülikoolide õppekavade veebilehed on sageli esimene kontaktpunkt potentsiaalsete elukestva õppe üliõpilaste ja kõrgkoolide vahel. Selles varajases faasis peavad üliõpilased otsustama, kas programm vastab nende eesmärkidele, väärtustele ja piirangutele. Käesolev magistritöö uurib, kuidas veebilehe kujundus mõjutab kasutajate *otsustusvalmidust* ehk seisundit, kus inimene tunneb end piisavalt kindlalt ja informeeritult, et vastu võtta otsus - kas minna ülikooli edasi õppima või mitte.

Varasemad uuringud on näidanud, et enesekindlus ja arusaamine mõjutavad otsustamist, kuid seni on vähe teada, kuidas neid seisundeid kujundavad haridusalaste veebilehtede kujundusvalikud. Tuginedes COM-B mudelile ja töötlussujuvuse teooriale (processing fluency), uurib see töö, kas sisu ja struktuuri parem vastavus kasutajate töötlusvajadustele suurendab arusaamist ja tugevdab usaldust oma arusaamise suhtes. Täpsemalt uuritakse: (1) kas ainult ligipääsetavuse standarditele (WCAG) vastav informatsiooniarhitektuur toetab otsustusvalmidust ka siis, kui sisu on minimaalne või kasutaja otsustusülesandega nõrgalt seotud; (2) kas ligipääsetav küljendus tugevdab sisu ülesandele vastavuse mõju, kui need kaks on kombineeritud; ja (3) kas veebisisu vastavus kasutaja otsustusülesandele parandab mõistmist ja enesekindlust ka sõltumatult struktuursest ligipääsetavusest.

Nende küsimuste testimiseks viidi läbi eelregistreeritud juhuslikustatud kontrolluuring (N = 113). Osalejatele näidati ühte kolmest ülikooli programmi veebilehe versioonist, mis erinesid struktuurse selguse (WCAG vastavus) ja selles, kas veebisisus oli eraldi välja toodud info, mida instruktsioonides küsiti. Seejärel hindasid osalejad oma enesekindlust arusaamises ning täitsid teadmiste testi, mis hõlmas nii infot, mis oli instruktsioonides eraldi välja toodud kui ka infot mille mõistmist ei instrueeritud.

Tulemused näitasid, et osalejad, kes nägid struktureeritud teksti tingimust (ülesandele vastav sisu ja WCAG-järgne struktuur), raporteerisid oluliselt kõrgemat enesekindlust oma teadmistes kui need,

kes nägid tabeliformaati ($p = .041$, $d = 0.49$). Seda mõju vahendas tajutud kognitiivne sobivus (perceived cognitive fit). Kuigi üldine arusaamine ei erinenud oluliselt tingimuste vahel, oli ülesandele vastava sisu puhul arusaamine oluliselt kõrgem struktureeritud tingimuses võrreldes tabelitingimusega ($p = .002$, $d = 0.89$).

Tulemused viitavad sellele, et otsustusvalmidust saab kujundada veebidisaini otsustega, mis lähtuvad kasutaja eesmärkidest ja infovajadusest. Uuring toob välja kognitiivse sobivuse kui mehhanismi, mis toetab enesekindlust keerulises digikeskkonnas, ning laiendab töötlussujuvuse käsitlust kõrghariduse konteksti. Raamistades programmi sobivuse hindamist kui aktiivset probleemilahendust, pakub töö soovitusi ülikoolidele, kuidas veebikeskkonna abil paremini toetada potentsiaalsete üliõpilaste teadlikku ja enesekindlat otsustamist.

Abstract

University programme webpages often serve as the first point of contact between prospective students and higher education institutions. At this early stage, students must decide whether a programme aligns with their goals, values, and constraints. This thesis examines how webpage design influences users' decision readiness, the state of being both confident and sufficiently informed to move forward with an educational decision.

While prior research has shown that confidence and comprehension influence action, little is known about how these states are shaped by specific design features of educational webpages. Drawing on the COM-B model and processing fluency theory, this study investigates whether aligning content and structure with users' evaluation tasks can enhance confidence in understanding and improve comprehension. Specifically, it asks: (1) whether WCAG-aligned structure alone supports decision

readiness even when content is minimal or weakly aligned with users' goals; (2) whether such structure amplifies the effects of task-aligned content when the two are combined; and (3) whether task-aligned content improves comprehension and confidence independently of structural accessibility.

To test these questions, a preregistered randomised controlled trial (N = 113) was conducted. Participants were shown one of three versions of a university programme webpage, each varying in structural clarity (WCAG compliance) and the task relevance of the content. Participants then reported their confidence in understanding and completed a comprehension test covering both instructed and incidental content.

Results indicated that participants in the Structured Text condition, which combined task-aligned content with WCAG-compliant structure, reported significantly higher confidence than those in the Table condition ($p = .041$, $d = 0.49$). This effect was significantly mediated by perceived cognitive fit. No significant overall differences in comprehension were found, but for instructed content, comprehension was significantly higher in the Structured Text condition compared to the Table condition ($p = .002$, $d = 0.89$).

These findings suggest that confidence can be shaped by aligning design with users' goals and information needs. The study introduces cognitive fit as a mechanism behind confidence in complex digital environments and extends fluency research into higher education. By framing programme evaluation as active problem-solving, the findings offer design principles for improving student decision support online.

Executive Summary

Many adults may be interested in further education but still choose not to take the next step. This hesitation might not be due to a lack of motivation, but perhaps because university websites make it difficult to understand whether a programme is a good fit.

The thesis introduces decision readiness as the key outcome of effective webpage design at this stage. Decision readiness refers to having both comprehension of the programme and confidence in that understanding, together enabling a person to move forward with their decision.

To explore how decision readiness can be supported, the study used a randomised controlled experiment comparing different versions of a programme webpage. Each version differed in how well the content was aligned with participants' evaluation tasks and whether it followed Web Content Accessibility Guidelines. After viewing their assigned webpage, participants were asked about their confidence in understanding key details of the programme and were also quizzed on their actual comprehension.

Cognitive fit refers to the alignment between the way information is presented and the way users approach the task of evaluating a study programme. When this alignment is strong, users experience the page as more intuitive, and problem-solving becomes easier. This sense of fit appears to support confidence by helping users feel that the decision environment is working in their favour.

This concept also prompts a shift in how programme evaluation is understood, not as a passive act of reading or browsing, but as an active, goal-directed task. It is through the lens of cognitive fit that programme evaluation can be reframed as a problem-solving activity, where users are trying to match a complex offering to their own goals, needs, and constraints. Designing for cognitive fit, therefore, means

structuring content in ways that anticipate users' questions and support their efforts to make an informed decision

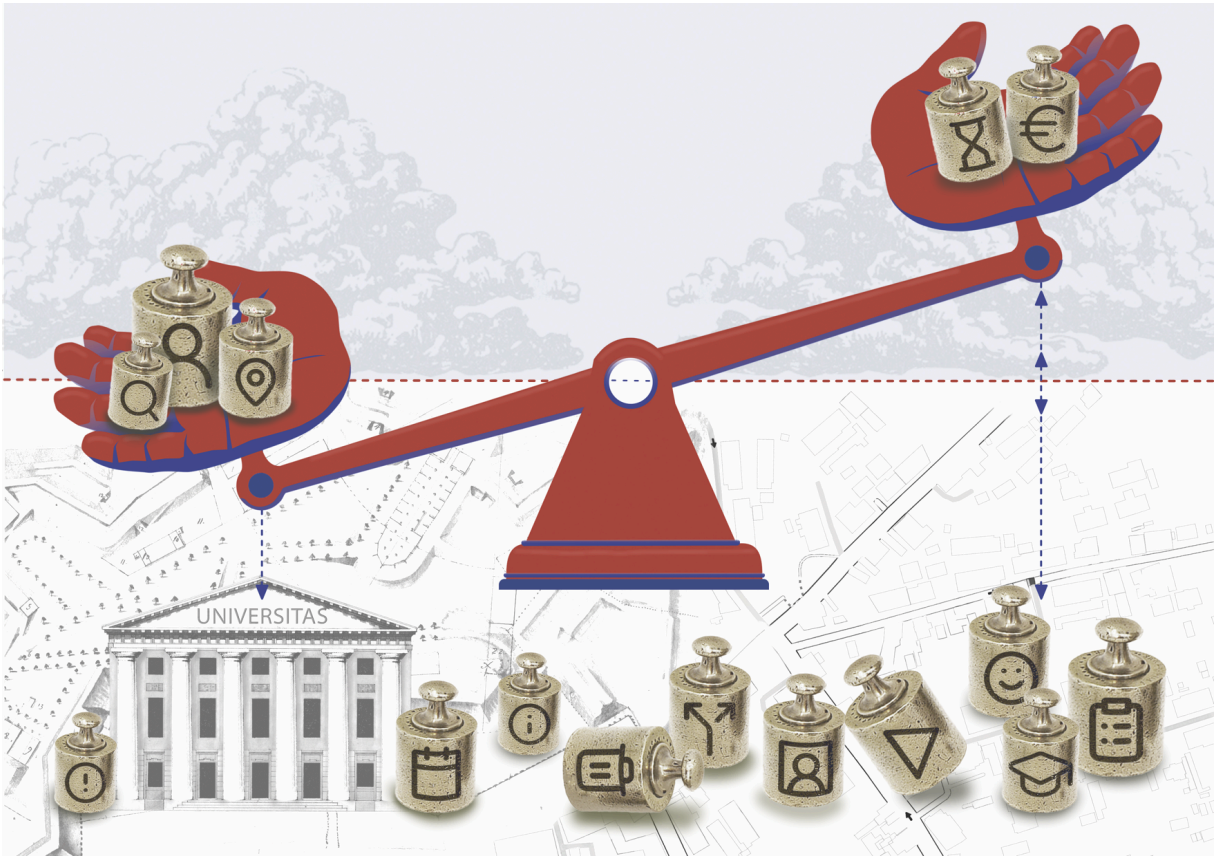
This work brings a behavioural perspective to educational marketing and communication. Its main contribution is demonstrating that programme page design affects how confident users feel in their understanding, a condition that may help support their decision to take action. Although the study did not measure actual behaviour or validate what content students find most relevant, it uncovered useful design principles related to content structure, accessibility, and clarity. The thesis concludes with a set of guidelines intended to help university teams create programme pages that are not only informative but also make it easier for prospective students to consider applying.

Mapping of the Learning Decision Journey

While adult education is widely recognised as a key driver of both personal and societal development, increasing adult participation in formal education remains a persistent challenge (Council of the European Union, 2021; OECD, 2020). Understanding where to intervene in the learner's decision process requires mapping out how adults approach the choice to pursue education. This section outlines key stages in the journey and discusses where intervention might be most effective.

The Challenge of Increasing Educational Participation

A large-scale, government-commissioned study in the UK sought to understand the decision-making processes that lead adults to engage or not engage in learning (Kantar Public & Learning and Work Institute, 2018). Rather than identifying a clear set of universal barriers to target, the study revealed that adults weigh the perceived costs and benefits of learning in deeply personal and context-specific ways. What motivates one person may discourage another. The report maps out multiple decision-making stages and outlines a wide range of potential intervention points, but it explicitly cautions against trying to prioritise or generalise them. As a result, the findings, while insightful, offer limited direct guidance on where and how to intervene most effectively. Instead, the study underscores that improving adult participation in learning requires a coordinated effort across multiple stakeholders including government, employers, education providers and community organisations working together to create flexible, supportive and visible pathways into education.



The decision to pursue education is a personal balancing act. As the Kantar Public & Learning and Work Institute (2018) report highlights, there is no universal motivational lever; instead, participation depends on a dynamic, individual tipping point shaped by context, relevance, and feasibility. Illustration by Liis Kranich.

Designing the Choice Environment for Lifelong Learning

In parallel with these national-level efforts, the European Union has increasingly taken a leading role in shaping more inclusive and responsive learning systems. Recognising that traditional degree structures may not meet the evolving needs of working adults, the EU has introduced a series of initiatives aimed at making education more accessible, flexible, and relevant. Among the initiatives is the promotion of micro-credentials: small, stackable units of certified learning that enable individuals to upskill or reskill without committing to a full degree programme. Through policy instruments such as the

European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience (European Commission, 2020a), the *Digital Education Action Plan 2021-2027* (European Commission, 2020b), and notably the *Council Recommendation on a European Approach to Micro-Credentials* (Council of the European Union., 2022), the EU has articulated a clear rationale: that educational uptake can be improved not only by increasing supply or funding, but by redesigning the environment in which educational choices are made.

This policy shift implicitly reframes the challenge. Rather than assuming that low participation stems solely from a lack of motivation or resources, it recognises that the structure, visibility, and navigability of educational offers themselves can either enable or inhibit action. By investing in modular, recognisable, and portable learning formats, the EU is working to remove systemic friction and facilitate easier entry points into learning, particularly for adults balancing work and family responsibilities.

Building on this perspective, the present study focuses on the final stages of the decision-making process, where points of friction can undermine even the most thoughtfully designed learning pathways.

Mapping the Journey to Application for Prospective Students

To structure the decision journey from initial ideas about joining a programme to actual commitment, we propose a four-stage model that reflects how prospective students navigate the application process. This framework is empirically grounded in findings from the Kantar Public & Learning and Work Institute (2018), which identifies distinct phases in adult learning decisions, from contemplation to commitment and continuation. Their model is itself informed by the Transtheoretical Model of behaviour change (Prochaska & Velicer, 1997), which characterises decision-making as a gradually unfolding process across stages of increasing readiness. Building on this foundation, we adapt

these stages specifically to the context of applying to higher education, focusing on the moment at which engaging in academic learning becomes a feasible and personally relevant option.

Stage 1: Tipping Readiness

First, we conceptualize the initial stage not as contemplation, but as *tipping readiness*, a transitional state between precontemplation and contemplation in which a latent intent to study becomes actionable if educational opportunities are made visible, feasible, and personally relevant.

Stage 2: Evaluation

The second stage blends aspects of contemplation and preparation but functions as a distinct process in this context. Before taking action, prospective students must decide where to apply. We therefore define this phase as *evaluation*, a deliberate and effortful stage in which individuals explore their options, build awareness and interest, and form a clear intention about the programme or institution that best fits their goals.

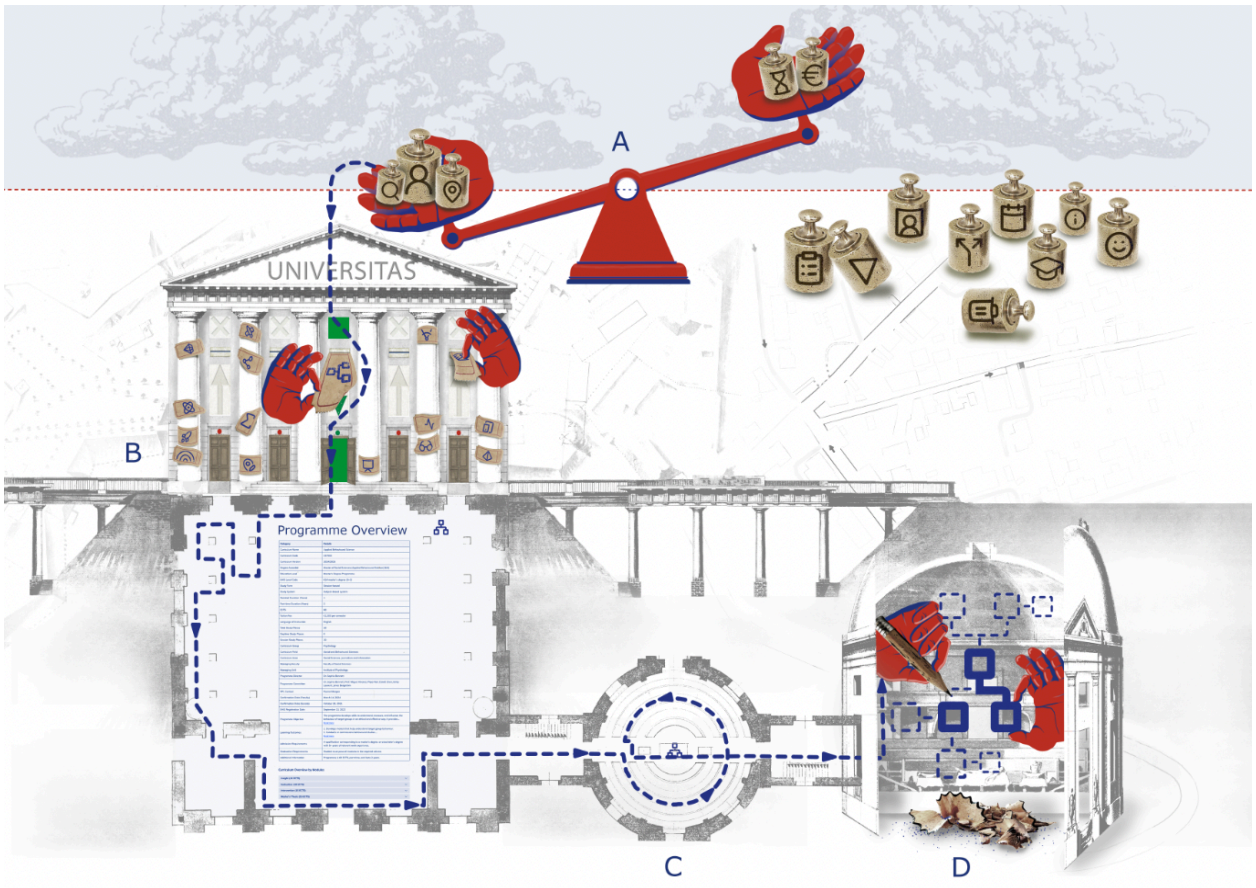
Stage 3: Application

The third stage, *application*, corresponds to the action stage in the TTM and marks the moment of commitment when prospective students transition from consideration to behaviour by submitting their application.

Stage 4: Enrolment and Active Engagement

Finally, the fourth stage aligns with the *maintenance* phase of the Transtheoretical Model and represents *enrolment and active engagement*. It recognises that sustained participation in studies

requires more than a one-time decision and depends on ongoing alignment between the programme and the student's evolving goals, values, and life circumstances.



The learner's decision journey. The first stage, tipping readiness (A), involves experiencing conditions that transform a latent desire to learn into a concrete intention to act. This is followed by the evaluation stage (B), where individuals explore and thus become aware of available educational paths and assess their relevance, feasibility, and personal fit. Next comes the application stage (C), marked by the decision to commit to a programme and apply. Finally, the journey continues into enrolment and engagement (D), where learners begin their studies and remain motivated to persist through to completion. Illustration by Liis Kranich.

Finding the Target Decision Stage

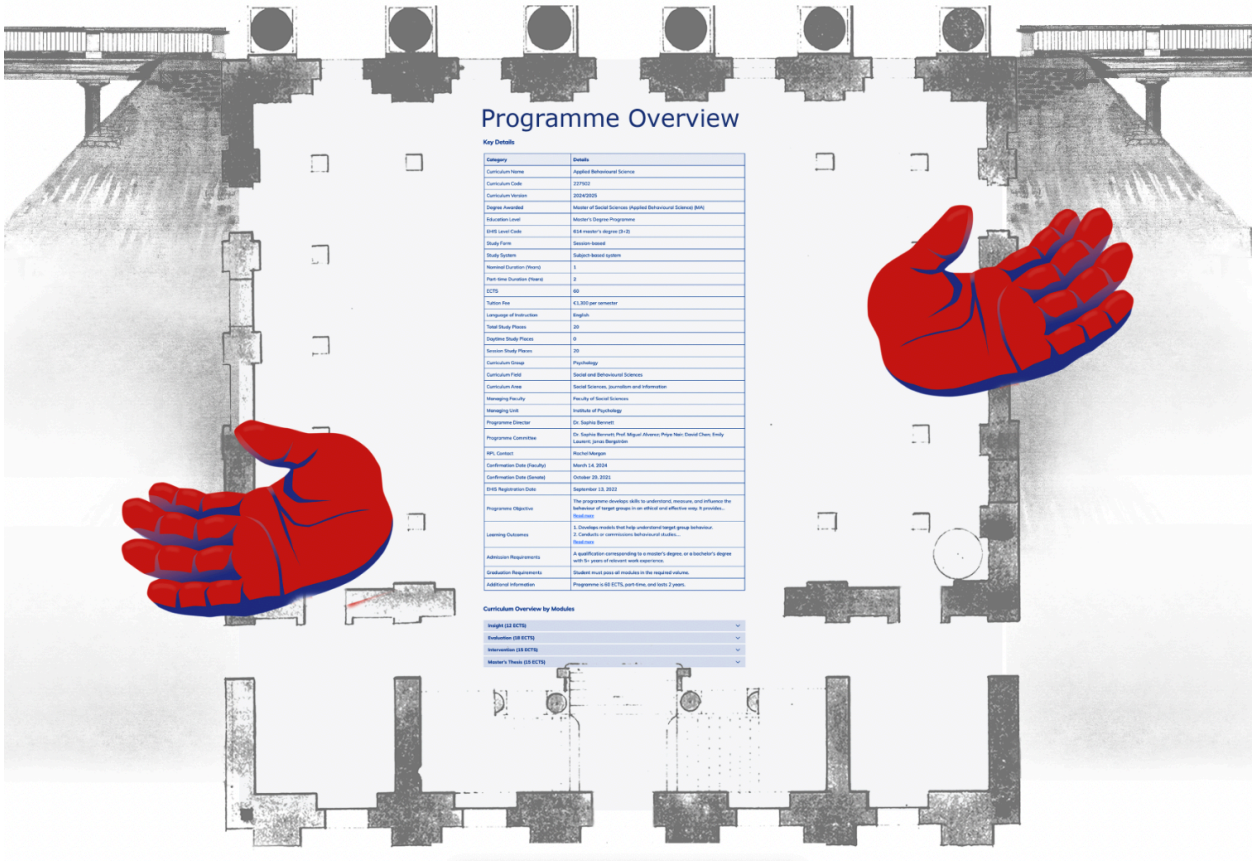
While all stages of the learner journey are important for long-term outcomes, they do not offer equally actionable opportunities for intervention.

As highlighted in the Kantar Public & Learning and Work Institute report (2018), stages such as tipping readiness and engagement are shaped by individualised and deeply embedded factors, including prior educational experiences, family responsibilities, financial pressures, health conditions, and institutional constraints. This is echoed in OECD findings, which categorise barriers into situational (e.g. lack of time, childcare, cost), institutional (e.g. inflexible provision, limited employer support), and dispositional (e.g. low self-efficacy, negative schooling histories) factors (OECD, 2020). The European Commission (2020a) similarly notes that adults' participation is often constrained not by a lack of interest, but by systemic conditions that limit access, flexibility, and perceived relevance of formal education.

These are difficult to influence not only due to entrenched beliefs and structural barriers but also because they unfold in environments that are not easily observable or controllable, limiting the potential for scalable intervention.

In contrast, the evaluation phase typically takes place in a structured digital environment, namely on university programme pages. This setting offers a scalable, low-cost, and controllable opportunity for behavioural design. While application submission also occurs online, it follows a decision that has already been made. At that stage, design can reduce friction in task completion but has limited power to influence decision quality or follow-through. In contrast, evaluation functions as a gateway to application. A clear, relevant, and manageable experience can support informed, confident

decision-making, whereas a poor experience increases the likelihood of disengagement (Lurie, 2004; Song & Schwarz, 2008).



The evaluation stage is a critical point for intervention as it enables application, shapes the quality of engagement, and may even tip the personal scale toward pursuing education. Illustration by Liis Kranich.

Intervention Description

At the evaluation stage, prospective students face the challenge of moving from exploration to decision. To design a meaningful intervention, it's important to understand the forces that support this transition.

The Role of Confidence and Comprehension in Pre-Decision Evaluation

Research consistently shows that people are more likely to act when they feel confident in their understanding of an option, whereas low confidence prompts further information seeking or reconsideration (Desender et al., 2018; Folke et al., 2016). Thus, improving confidence is not only about encouraging action, it is necessary to prevent stagnation or withdrawal from the decision process.

However, confidence alone can be misleading. A wide body of research also shows that people can feel confident even when they lack true understanding (for instance Alter & Oppenheimer, 2009). This is illustrated by the “illusion of explanatory depth”, a phenomenon in which people believe they understand complex concepts more thoroughly and accurately than they actually do (Rozenblit & Keil, 2002). This disconnect between how much people think they know and what they actually understand becomes particularly problematic in high-stakes one-off decision environments such as university programme selection. When prospective students feel confident but fail to fully comprehend the details of a programme, they may enrol in courses that are poorly aligned with their goals or expectations. The result can be dissatisfaction, disengagement, or even dropout, which compromises student success and places a significant burden on institutions. Conversely, false confidence in believing a programme isn’t a good fit may cause them to dismiss valuable opportunities prematurely.

To mitigate the risk of students making or avoiding decisions based on misplaced confidence, university programme webpages must be designed to foster not just a sense of confidence but also genuine understanding. Confidence provides the momentum to act, but only comprehension ensures that the action is well-informed and sustainable. Supporting both, understanding and confidence is therefore essential for ethical, responsible, and effective intervention design communication in the context of higher education and thus, form the foundation of decision readiness.

Intervention Precedents Across Domains

To inform the design of effective interventions in higher education, we turned to adjacent domains to examine how others have addressed similar challenges. Faced with the question of how to support confident and well-informed decision-making, we reviewed experimental studies in health, finance, and civic behaviour. What emerged across these domains was a recurring focus on the underlying constructs of confidence and comprehension, often addressed through strategies that enhance processing fluency. A narrative literature review by Okuhara et al. (2017), synthesising evidence from 30 experimental studies, shows that fluency-enhancing design features such as readability, simplicity, and vividness can improve comprehension, foster positive attitudes, and increase willingness to act. Real-world interventions targeting these mechanisms are summarised in Table 1.

Table 1

Overview of Behavioural Interventions Targeting Processing Fluency, Informed Confidence, and Decision Readiness in Adults

(Study) & Domain	Intervention Type	Targeted Construct(s)	Context	Effects on Decision-Making
(Okuhara et al., 2020) – Healthcare	Simplified health information (high readability)	Processing fluency; self-efficacy	Adults reading exercise advice brochure	Higher confidence in ability to act (↑ self-efficacy) with easy text vs. difficult text. Improved comprehension and willingness to exercise.
(Stacey et al., 2024) – Healthcare	Patient decision aids (various formats)	Decision readiness; informed confidence; reduced conflict	Patients facing treatment or screening choices (Cochrane review of trials)	Increased knowledge and lower decisional conflict with decision aids. Decisions more often aligned with patient values; people were less likely to stay undecided.
(Garcia-Retamero & Cokely, 2017) – Health/Risk	Visual risk communication aids (icon arrays, charts)	Processing fluency; cognitive load	Diverse participants interpreting statistical risks (36 studies)	Visual aids improved risk understanding in 88% of studies, helping especially low-numeracy people. Led to more informed decisions about medical treatments and behaviors.
(Ortiz et al., 2024) – Finance	Simplified credit card statements with visuals	Processing fluency; comprehension; repayment behavior	Adults managing credit card debt	Better comprehension of statements and increased debt repayment, especially in partial payoff conditions.

Note. The table presents selected behavioural interventions that demonstrate how improving information clarity, fluency, or confidence can support adult decision-making. While varied in context, these examples show that clearer communication can enhance understanding, readiness to act, and follow-through.

COM-B as a Design Framework for Structuring the Intervention

Because these real-world interventions consistently targeted comprehension and confidence through fluency-enhancing features, we adopted a similar approach. This intervention is guided by the COM-B model (Michie et al., 2011), which conceptualises behaviour (B) as a function of three interacting components: capability (C), opportunity (O), and motivation (M). In this study, COM-B serves as a high-level model for defining the design conditions that support the behaviour of evaluating a university programme as a process of gaining the understanding and confidence needed to make a well-informed and assured decision.

Capability: Making Content Understandable and Actionable

In the context of evaluating a university programme, capability refers to prospective students' cognitive ability to make sense of the information provided. This includes both understanding what the programme entails and judging whether it aligns with their goals, needs, or constraints.

Opportunity: Reducing Friction Through Accessible Design

In the COM-B model, opportunity refers to external conditions that support or constrain behaviour. In digital decision environments, this includes not only whether information is available, but whether users can easily find, read, and make sense of it. In other words, it is not just the presence of content that matters, but the conditions under which that content can be processed. Even highly relevant information can fail to support decision-making if it is visually difficult to navigate.

Motivation: Assumed Rather Than Designed For

This intervention does not attempt to increase or generate motivation directly. Instead, motivation is treated as an assumed precondition. This reflects the conceptual hypothesis that many prospective students already possess a latent desire to pursue further education but may disengage if the evaluation environment makes the task feel overwhelming, confusing, or irrelevant. In such cases, failure to act is not necessarily due to a lack of motivation, but due to the absence of conditions that allow that motivation to be meaningfully expressed.

Target Cognitive State: Decision Readiness

This intervention does not adopt a SMART (Specific, Measurable, Achievable, Relevant, Time-bound) goal because its aim is not to trigger a new behaviour but to reduce a possible friction point in the existing decision process: low confidence in understanding study programme information. While downstream behaviours such as exploring financing options, saving programme pages, contacting admissions, or enrolling are relevant for understanding the real-world impact of such interventions, studying and influencing these actions go beyond the current scope of this study. Rather than encouraging immediate actions, the intervention focuses on the cognitive preconditions that enable action.

Following this logic, we argue that motivation to attend a course can only be effectively leveraged when capability and opportunity are well-designed, as we propose that these conditions together increase processing fluency, the subjective sense that a task is progressing smoothly and requires minimal mental effort (Alter & Oppenheimer, 2009). High processing fluency has been shown to increase confidence in one's understanding, a finding repeatedly supported in the literature (see also Alter & Oppenheimer, 2009). Complementing this, Cognitive Load Theory (Chandler & Sweller, 1991;

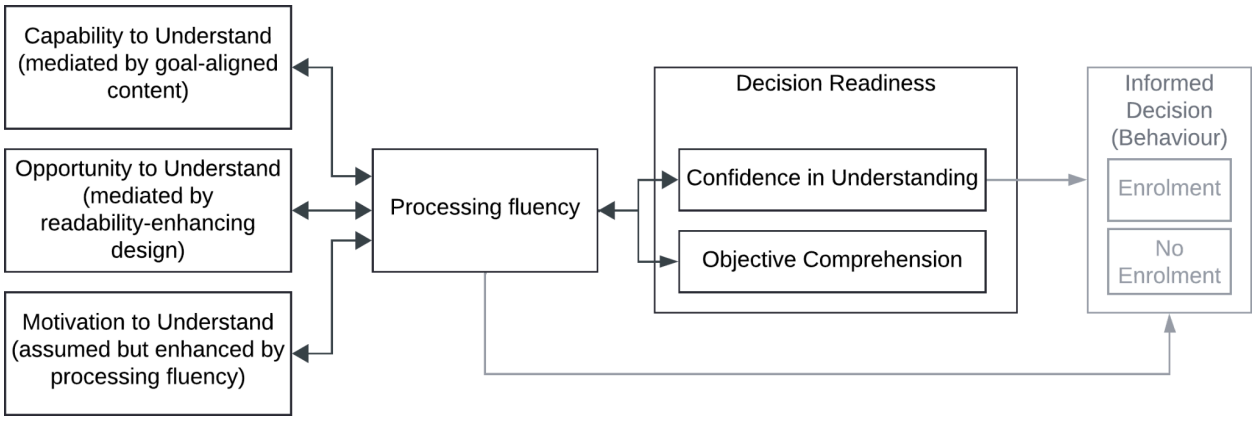
Sweller, 1988) highlights that comprehension is impaired when cognitive resources are consumed by extraneous demands rather than directed toward meaningful understanding. In this way, processing fluency not only enhances confidence but also indirectly supports forming comprehension by reducing unnecessary cognitive load.

We thus propose that when processing fluency is facilitated in the context of evaluating a study programme, it enables a state of confidence in understanding, which in turn increases the likelihood of users transitioning from exploration to action.

Importantly, we recognize that decision readiness does not equate to universal action. Advanced Decision-Making Competence (A-DMC), which includes skills such as information seeking, comprehension monitoring, and forecasting (Bruine De Bruin et al., 2007), varies between individuals. As such, fostering comprehension is not solely a matter of environment design. Individuals with lower A-DMC may still act when a sense of confidence is achieved, while those with higher A-DMC are better positioned to benefit from evaluation environments that support both confidence and comprehension. Figure 1 presents a visual summary of the proposed process model linking COM-B components to decision readiness via processing fluency.

Figure 1

A COM-B-Informed Process Model of Enrolment Decision-Making via Decision Readiness and Processing Fluency



Note. Capability, opportunity, and motivation contribute to processing fluency, which supports decision readiness through comprehension and confidence. While confidence and fluency can predict action, we propose that decision readiness is a prerequisite for deliberate, goal-aligned behaviour. This relationship was not tested in the present study.

Study Rationale and Hypotheses

Study Objectives

While processing fluency has been shown to increase both confidence and the likelihood of behavioural action in domains like health, finance, and consumer decisions, its role in the context of university programme webpages remains underexplored, particularly regarding how specific design features influence comprehension and confidence during academic programme evaluation.

This study addresses this gap by examining how different webpage design features contribute to processing fluency and, in turn, support decision readiness through comprehension and confidence. Instead of treating fluency as an isolated factor or inducing it through artificial manipulations, we investigate how practical, theory-informed design choices shape user experience via two strategies: (1) structural alignment with internationally recognised Web Content Accessibility Guidelines (WCAG) and (2) alignment of content with users' decision-making tasks. By using ecologically valid webpage formats, the study does not aim to establish causal links but rather to identify which design elements enhance fluency and better support informed programme evaluation.

Specifically, the study asks:

1. Does aligning webpage structure with Web Content Accessibility Guidelines (WCAG) improve comprehension and confidence when content is minimal or only weakly aligned with users' decision-making tasks?

2. Does WCAG alignment enhance the effectiveness of task-aligned content when the two are combined?

3. Does content alignment with users' decision-making tasks improve comprehension and confidence independently of structural accessibility?

The overarching objective is to generate evidence-based design guidance for university marketing teams by identifying which design elements are necessary or sufficient for supporting informed and confident programme evaluation. By mapping the behavioural preconditions for decision readiness, this study contributes to behavioural science by exploring how people make choices about university programmes online.

COM-B Framing

To structure the intervention, we drew on the COM-B model (Michie et al., 2011), which defines behaviour as the result of three interacting components: capability, opportunity, and motivation. In the context of evaluating a university programme online, we focused on identifying how capability and opportunity can be supported through design to enable informed and confident decision-making.

Capability

To support prospective students' capability to understand and evaluate the programme, the intervention incorporated two design strategies: task-aligned content and scaffolded structure.

Task-aligned content. Task-aligned content refers to information that directly supports the judgments students make during the evaluation stage, such as entry requirements, workload, scheduling flexibility, and expected outcomes. Research in educational psychology shows that learners are more likely to invest cognitive effort when material is perceived as personally relevant and goal-congruent. This principle is highlighted in motivational theories including the ARCS model (Keller, 2010), Expectancy-Value Theory (Wigfield & Eccles, 2000), and Self-Determination Theory (Ryan & Deci, 2000), all of which identify perceived task value as a central driver of motivation and comprehension. Aligning content with prospective students' decision-making tasks increases the likelihood they will attend to, engage with, and understand the information, as it helps answer their implicit question: "Why does this matter to me?"

Scaffolded structure. While task-aligned content ensures relevance, it can also result in dense or extensive information. To keep this content comprehensible and prevent cognitive overload, a scaffolded structure is essential. This study adopts the *bite–snack–meal* format (O'Flahavan, n.d.), a practical

implementation of the principle of progressive disclosure (Nielsen, 2006). In this format, content is structured in three levels. A *bite* provides a concise summary that orients the reader's attention. A *snack* follows with a mid-level overview that covers the most essential information. Finally, a *meal* presents the full detail for readers who are ready to engage more deeply. This progression allows prospective students to access information at a pace and depth that matches their current level of engagement, while ensuring readers can build toward complete comprehension by accessing progressively detailed content.

Opportunity

Opportunity to comprehend content was enhanced by aligning with the Web Content Accessibility Guidelines (World Wide Web Consortium (W3C), 2024), the international standard for accessible and user-friendly digital content. Rather than focusing on surface-level aesthetics, WCAG emphasises structural features that facilitate efficient information processing such as semantic headings, logical reading order, consistent navigation, descriptive labels, and readable text. Although originally developed to support users with disabilities, WCAG has been shown to improve usability, efficiency, and satisfaction for all users (Schmutz et al., 2016). Accordingly, by reducing cognitive effort and enhancing visual clarity, WCAG-aligned design increases the likelihood that prospective students can process programme information efficiently and stay focused on the task at hand.

Motivation

While this study does not manipulate motivation directly, it holds it relatively constant by providing participants with clear instructions and a purposeful task. All participants were asked to imagine they were considering applying to a university programme and were then instructed to evaluate the programme by forming a clear understanding of its content, purpose, structure, and relevance. By

framing the task in this way, we aimed to activate goal-directed processing and simulate a realistic evaluation scenario, thereby ensuring that participants were motivated to engage with the content.

Hypotheses Overview

We expected the combination of WCAG compliance and task-aligned content to produce the strongest outcomes for comprehension and confidence, based on the logic of the COM-B model and supporting cognitive theories. Accordingly, Structured Text condition was expected to perform best. Scattered Text was predicted to perform worse than both Structured Text and Table. Although it included task-relevant content, the Scattered Text condition deliberately violated multiple WCAG principles related to perceivability and navigability. Its fragmented layout, inconsistent headings, and visually dispersed structure were expected to disrupt processing fluency and increase cognitive load, thereby preventing users from benefiting from the task-alignment. The Table condition, which was WCAG-compliant but not task-aligned, was expected to yield intermediate outcomes. Its accessible structure was assumed to allow users to compensate for the poor task fit by reallocating available cognitive resources.

While the primary focus of this study is on prospective students' confidence in understanding and objective comprehension, we also examine whether task-aligned content and WCAG-compliant design enhance incidental learning. Specifically, we explore whether these features improve access to non-targeted content by increasing perceptual accessibility and cognitive fluency.

These theoretically grounded expectations, along with exploratory hypotheses are formalised below.

H1a: Participants exposed to the Scattered Text will report lower confidence in understanding than those in the Structured Text and Table conditions.

H1b: Participants exposed to the Scattered Text will report lower objective understanding than those in the Structured Text and Table conditions.

H2: Participants exposed to the Structured Text will report higher confidence in understanding than those in the Table condition.

H3: Participants exposed to the Structured Text will demonstrate higher objective understanding than those in the Table condition.

H4a: Participants exposed to the Structured Text condition will demonstrate similar levels of objective understanding for both instructed and incidental content.

H4b: Participants exposed to the Structured Text condition will demonstrate similar levels of confidence in understanding for both instructed and incidental content.

H4c: Participants exposed to the Table condition will demonstrate higher Instructed Comprehension Scores than Incidental Comprehension Scores.

H4d: Participants exposed to the Table condition will demonstrate higher Instructed Confidence Scores than Incidental Confidence Scores.

Methods

Participants and Recruitment

Participants were recruited through the online research platform Prolific and were required to (1) be at least 18 years old, (2) currently reside in a country within the European Union, European Economic Area, or European Higher Education Area, and (3) hold at least a bachelor's degree which ensured that participants not only had experience with higher education systems but also that these systems followed similar standards for quality and academic expectations.

A priori power analysis was conducted to determine the required sample size for detecting a small-to-moderate effect size. To achieve 80% power at an alpha level of .05, the study was designed to detect an effect size of f = 0.30 using a one-way ANOVA. The analysis indicated that a minimum of 37 participants per group was needed, resulting in a target sample size of 111 participants across the three experimental conditions.

The final sample consisted of 113 participants, of whom 69% identified as male and 31% as female. Participants ranged in age from 18 to 55+, with the largest age group being 25–34 years (38%), followed by 35–44 years (22%), 45–54 years (16%), and 22–24 years (14%). One participant was in the 18–21 age group, and 9% were aged 55 or older. Regarding education level, 91% held a bachelor's degree, 8% held a master's degree, and one participant reported a different level of education.

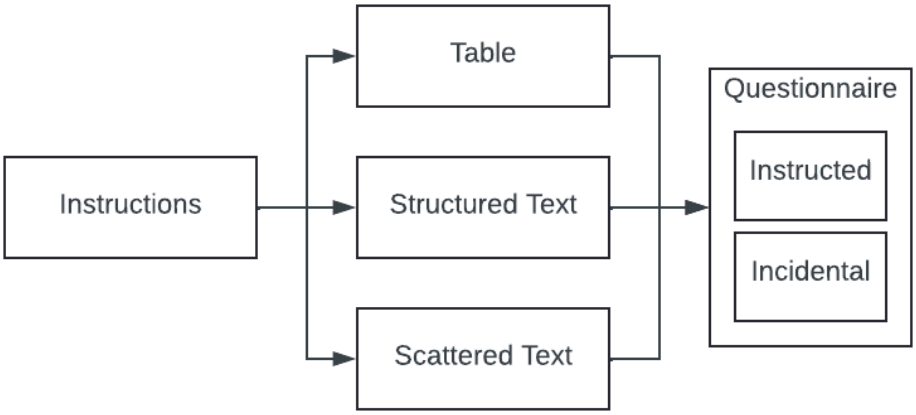
Study Design and Procedure

In this study, participants viewed identical study instructions and were then randomly assigned to one of three webpage design conditions (Table, Structured Text, or Scattered Text). After viewing the webpage, they completed a questionnaire assessing comprehension, confidence and related constructs.

Both confidence and comprehension measures distinguished between instructed (content participants were told to focus on) and incidental (non-highlighted) information. An overview of the experimental design and procedure is provided in Figure 2.

Figure 2

Overview of the experimental design and procedure.



Note. Participants received instructions, were randomly assigned to a condition, and after viewing the webpage, completed a questionnaire on both instructed and incidental content.

Study Design

This study employed a 2 (Content Type: Instructed vs. Incidental; within-subjects) × 3 (Webpage Condition: Table, Structured Text, Scattered Text; between-subjects) experimental design.

Operationalizing WCAG Compliance. WCAG compliance refers to the extent to which the webpage followed selected principles from the Web Content Accessibility Guidelines (WCAG) 2.1. A full description of the WCAG success criteria applied in each condition is provided in Appendix B.

Operationalizing Task Alignment. Task alignment refers to the degree to which the content addressed the questions provided in the instructions, and whether the structure of the content prioritised that task-relevant information. The full set of instructions given to participants is provided in Appendix C.

Table 1

Overview of experimental conditions

Manipulated Dimension	Condition		
	Table	Structured Text	Scattered Text
Task alignment	Limited	Full	Full
WCAG-compliance	Full	Full	Limited

Note. Task alignment refers to how well the content supports the participant's evaluation task. WCAG compliance refers to adherence to relevant accessibility standards. These dimensions were systematically varied across the three experimental conditions (Table, Structured Text, Scattered Text).

Outcome Measures

The study included two primary outcome measures: (1) Confidence in Understanding, assessed via self-report, and (2) Objective Comprehension, assessed through a multiple-choice questionnaire. Related items were designed to cover the same content areas, enabling comparison between participants' perceived and actual understanding.

Confidence in Understanding. Confidence in Understanding was measured using seven self-developed Likert-scale items. Participants rated their agreement with statements such as “I am confident that I know who this programme is designed for” and “I have a clear understanding of the modules in the Applied Behavioural Science programme,” using a 7-point scale (1 = “Completely disagree” to 7 = “Completely agree”). An overall Confidence score was calculated as the mean of all seven items, with higher scores indicating greater perceived confidence.

To distinguish between instructed and incidental content, the Confidence items were divided into two subscales: Items 1–4 assessed Instructed Confidence, and Items 5–7 assessed Incidental Confidence.

Objective Comprehension. Objective Comprehension was assessed with seven multiple-choice questions, each containing one correct option, three distractors, and an “I don’t know” option to discourage guessing. The total Objective Comprehension score was the sum of correct responses (maximum score = 7).

Similarly, Instructed and Incidental Comprehension were calculated by dividing the comprehension items according to their focus: Questions 1–4 assessed Instructed Comprehension (content highlighted in the instructions), and Questions 5–7 assessed Incidental Comprehension (content not emphasised in the instructions).

Independent Variables

The study included two independent variables: (1) Content Type (within-subjects) and (2) Webpage Design (between-subjects).

Content Type. Participants received task instructions that explicitly highlighted specific aspects of the programme (e.g., target audience, tuition details). Based on this, outcome measures were divided into two categories: (1) *Instructed Confidence* and *Instructed Comprehension*, which reflect understanding of content explicitly mentioned in the instructions, and (2) *Incidental Confidence* and *Incidental Comprehension*, which reflect understanding of content not highlighted in the instructions.

Webpage Design. Participants were randomly assigned to one of three webpage conditions (Table, Structured Text, or Scattered Text) differing in their structural alignment and cognitive load features as described in the Study Design section.

Procedure

After agreeing to participate via Prolific, participants were directed to a custom-built study platform. Upon arrival, they first provided informed consent and were then presented with instructions describing the study context and task expectations. Participants were asked to imagine considering enrolment in a master's degree and to review a webpage describing the Applied Behavioural Science programme, focusing specifically on what the programme is about, who it is for, what skills it offers, and how it is delivered.

Participants were then randomly assigned to one of three webpage conditions (Table, Structured Text, or Scattered Text) using balanced randomisation. They were required to spend at least three minutes reviewing the webpage, with a maximum time limit of ten minutes and early attempts to continue were blocked with a prompt to review the page more thoroughly.

After the webpage exposure, participants proceeded to a questionnaire assessing instructed and incidental confidence in understanding, instructed and incidental objective comprehension, perceived

cognitive load, perceived cognitive fit, and demographics. The full questionnaire is included in Appendix D. Participants could not return to the webpage once they started the questionnaire, and responses were locked after each section to preserve response validity. At the end, participants had the option to leave open-ended feedback, which was included for quality assurance purposes but was not analysed.

Ethics

Participants provided informed consent before beginning the study and were informed of their right to withdraw at any time. They received £1.80 as compensation. Participation was anonymous, no personally identifiable data were collected or stored, and the study involved no deception or foreseeable risks or discomfort. Based on these considerations, we determined that ethics committee approval was not required.

The full study design was preregistered prior to data collection on the Open Science Framework (OSF): https://osf.io/yw2qn. The preregistered hypotheses and data collection procedures were fully adhered to. Minor deviations occurred in the analysis plan: although a one-way ANOVA was initially specified, the final analysis employed a repeated-measures ANOVA to better account for the within-subject design structure. Additionally, some variable and condition names were changed for clarity in the final manuscript, but these changes did not affect the underlying constructs or data.

This study was funded entirely through the personal resources of the author, Helen Habakuk. No external financial support was received. The author serves on the council of the Estonian Business School Foundation, an organisation with a direct interest in enhancing the design of university programme webpages. While this connection may represent an indirect conflict of interest, the primary motivation

for this study was to support equitable access to education by helping prospective students make informed decisions, regardless of institution.

Data Analysis

All analyses were conducted using JASP version 0.18. Data quality was ensured through pre-registered exclusion criteria. Participants were to be excluded from the final dataset if they (1) completed the full study (webpage viewing and questionnaire) more than three standard deviations faster than the sample mean, or (2) failed either of the two simple attention check items embedded in the questionnaire (e.g., “Please select ‘Strongly agree’ for this item”). In practice, no participants were excluded for completing the study unusually quickly. One participant was excluded for failing an attention check.

To test Hypotheses H1–H4, we conducted two 2 (Content Type: Instructed vs. Incidental; within-subjects) × 3 (Webpage Condition: Table, Structured Text, Scattered Text; between-subjects) mixed-design ANOVAs. The dependent variables were Confidence in Understanding and Objective Comprehension, each analysed in a separate model. Main effects and interaction terms were followed by Tukey’s HSD for between-subject comparisons and Bonferroni corrections for within-subject contrasts. When Levene’s test indicated heterogeneity of variances, Welch’s ANOVA was used as a robust alternative. All effect sizes are reported using partial eta squared (η^2) and Cohen’s d for pairwise effects.

Results

Preliminary Analysis: Time on Task

We used a one-way ANOVA to test whether time spent on task differed by webpage condition. No significant differences were found, $F(2, 100) = 0.07$, $p = .931$, $\eta^2 = .001$. Participants in the Table ($M = 288.51$ s, $SD = 93.85$), Structured Text ($M = 288.00$ s, $SD = 98.99$), and Scattered Text ($M = 280.81$ s, $SD = 84.31$) conditions spent a comparable amount of time on the webpage.

Main Analysis

A summary of hypotheses, predictions, and observed outcomes is presented in Table 2. Below, we report the results of the primary analyses on confidence in understanding and objective comprehension by presentation format and content type.

Confidence in Understanding

There was a significant main effect of presentation format on confidence in understanding, $F(2, 110) = 3.33$, $p = .040$, $\eta^2 = .041$. However, contrary to H1a, participants in the Scattered Text condition ($M = 5.94$, $SD = 0.72$) did not report significantly lower confidence than those in the Structured Text ($M = 6.20$, $SD = 0.50$, $p = .140$) or Table conditions ($M = 5.82$, $SD = 0.63$, $p = .846$). In support of H2, participants in the Structured Text condition reported significantly higher confidence than those in the Table condition ($p = .041$, $d = 0.49$).

A main effect of content type was also observed, $F(1, 110) = 10.87$, $p = .001$, $\eta^2 = .023$. In addition, a significant interaction between content type and presentation format was found, $F(2, 110) = 3.65$, $p = .029$, $\eta^2 = .016$, indicating that the effect of content type differed depending on presentation

format. Within-group comparisons showed a significant difference in the Table condition (instructed: M = 5.63, SD = 0.69; incidental: M = 6.08, SD = 0.89), where confidence was higher for incidental than for instructed content ($p = .005$, $d = –0.61$), contrary to H4d. In the Structured Text condition (instructed: M = 6.09, SD = 0.62; incidental: M = 6.34, SD = 0.53), no significant difference emerged between content types, supporting H4b (Figure 3A).

We also exploratorily examined whether confidence levels for incidental and instructed content differed across webpage conditions. Post hoc comparisons revealed no significant differences between any conditions for instructed confidence nor incidental confidence.

Objective Comprehension

No main effect of presentation format on objective comprehension was found. H1b predicted lower comprehension in the Scattered Text condition, but participants in this group (M = 5.45, SD = 1.29) did not show significantly lower comprehension than those in the Structured Text (M = 5.73, SD = 1.19) or Table (M = 5.24, SD = 1.34) conditions. Similarly, H3 predicted an advantage for the Structured Text format over the Table format, but this difference was not statistically significant.

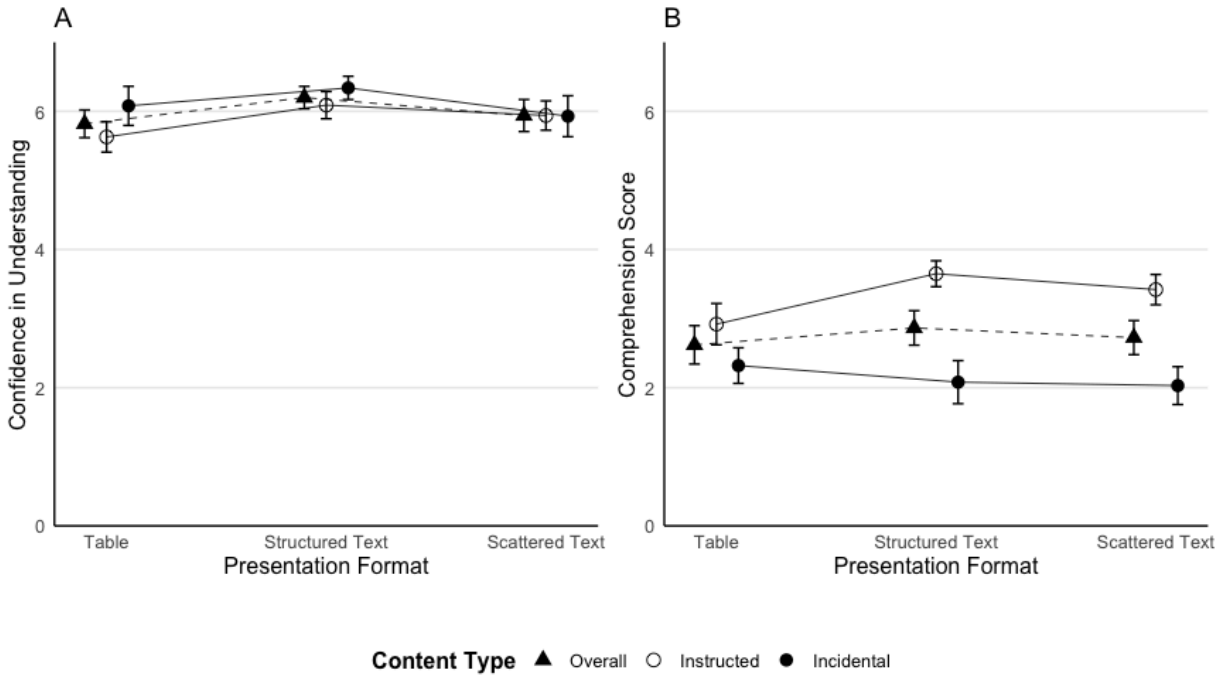
A main effect of content type on objective comprehension was observed, $F(1, 110) = 149.91$, $p < .001$, $\eta^2 = .332$. This effect differed across presentation formats, as indicated by a significant interaction between content type and presentation format, $F(2, 110) = 9.32$, $p < .001$, $\eta^2 = .041$. Within-group comparisons showed significantly higher comprehension for instructed content than for incidental content in all three conditions: Table (instructed: M = 2.92, SD = 0.94; incidental: M = 2.32, SD = 0.81; $p = .007$, $d = 0.74$), Structured Text (instructed: M = 3.65, SD = 0.59; incidental: M = 2.08, SD = 0.98; $p < .001$, $d = 1.91$), and Scattered Text (instructed: M = 3.42, SD = 0.68; incidental: M = 2.03, SD = 0.85; $p < .001$, d

= 1.98). These results support H4c, which predicted higher instructed comprehension in the Table condition, but not H4a, which predicted no difference in the Structured Text condition (Figure 3B).

We also exploratorily examined whether comprehension levels for instructed and incidental content differed across webpage conditions, using post hoc pairwise comparisons. For instructed comprehension, the Structured Text condition yielded significantly higher scores than the Table condition ($p = .002$, $d = 0.89$), but did not differ significantly from the Scattered Text condition. There was also no significant difference between Scattered Text and Table. For incidental comprehension, no significant differences were found between any of the three webpage designs.

Figure 3

Confidence in Understanding and Objective Comprehension by Webpage Condition and Content Type



Note. Panel A displays confidence in understanding for instructed and incidental content across presentation formats. Overall, confidence was significantly higher in the Structured Text condition compared to the Table condition, with no significant differences between content types. Panel B shows comprehension scores, which were consistently higher for instructed than for incidental content. Instructed content in the Table condition was significantly less comprehended than in other formats. Error bars represent 95% confidence intervals. Error bars represent 95% confidence intervals.

Table 2

Summary of Hypotheses, Predictions, and Support for Confidence and Objective Comprehension Outcomes

Hypothesis	Prediction	Supported?
	Confidence in Understanding	
H1a	Scattered Text < Structured Text and Table	Not supported
H2	Structured Text > Table	Supported
H4b	Structured Text: Instructed ≈ Incidental	Supported
H4d	Table: Instructed > Incidental	Not supported (opposite direction)
	Objective Comprehension	
H1b	Scattered Text < Structured Text and Table	Not supported
H3	Structured Text > Table	Not supported
H4a	Structured Text: Instructed ≈ Incidental	Not supported
H4c	Table: Instructed > Incidental	Supported

Exploratory Analysis

To better understand the mechanisms underlying differences in decision readiness across webpage formats, we conducted exploratory analyses examining perceived cognitive load and cognitive fit, both in terms of differences between conditions and their potential roles as mediators.

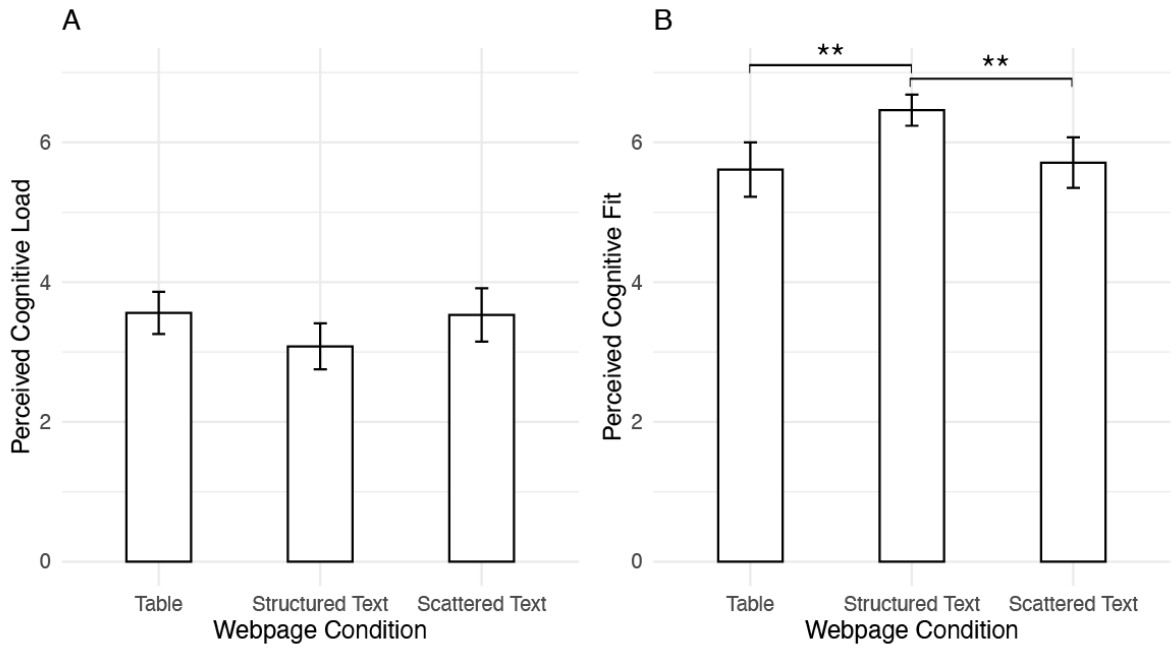
Perceived Cognitive Load and Cognitive Fit Across Webpage Conditions

We used a one-way ANOVA to test the effect of webpage condition on perceived cognitive load. No significant differences were observed across conditions, indicating that perceived load was similar regardless of visual format (Figure 4A).

In contrast, a significant effect of webpage condition was found for perceived cognitive fit (Figure 4B), $F(2, 110) = 7.42$, $p < .001$, $\eta^2 = .119$. Post hoc Tukey tests showed that participants in the Structured Text condition reported higher cognitive fit ($M = 6.46$, $SD = 0.69$) than those in the Table ($M = 5.61$, $SD = 1.22$, $p = .002$, $d = 0.86$) and Scattered Text conditions ($M = 5.71$, $SD = 1.14$, $p = .007$, $d = 0.74$). No significant difference was found between the Table and Scattered Text groups.

Figure 4

Perceived Cognitive Load and Cognitive Fit by Webpage Condition



Note. Panel A shows that perceived cognitive load did not differ across conditions. Panel B shows that cognitive fit was rated highest in the Structured Text condition, with no difference between Table and Scattered Text. Error bars represent 95% confidence intervals. Asterisks indicate statistically significant differences.

Perceived Cognitive Fit and Cognitive Load as Mediators of Confidence and Comprehension

To test whether differences in perceived cognitive fit and cognitive load explained the effects of presentation format on confidence and objective comprehension, we conducted two exploratory mediation analyses, with webpage condition as the predictor (2 levels: Table and Structured Text),

perceived cognitive fit and cognitive load as parallel mediators, and either confidence or objective comprehension as the outcome.

For confidence, the indirect effect of webpage condition via perceived cognitive fit was significant, $\beta = -0.172$, SE = 0.077, $z = -2.217$, $p = .027$, 95% CI [–0.323, –0.020], indicating that Structured Text increased confidence through higher perceived fit. The indirect effect via cognitive load was not significant. The total indirect effect was significant, $\beta = -0.201$, SE = 0.075, $z = -2.690$, $p = .007$, 95% CI [–0.348, –0.055], while the direct effect of webpage condition on confidence was not significant, suggesting full mediation via perceived cognitive fit.

Discussion

This study investigated how the design of a university programme webpage affects prospective students' confidence in their understanding and their actual comprehension. Specifically, we asked: (1) whether WCAG-aligned structure improves these outcomes even when content is minimal or weakly aligned with users' decision-making tasks, (2) whether WCAG alignment enhances the effectiveness of task-aligned content when combined, and (3) whether task-aligned content improves comprehension and confidence independently of structural accessibility. These questions aimed to inform evidence-based design principles for university marketing teams, helping prospective students feel more confident and informed when evaluating university programmes online.

Our central hypothesis was that alignment with users' goals and compliance with accessibility standards would enhance processing fluency, thereby increasing confidence in understanding. Supporting this, confidence ratings were significantly higher in the task-aligned and WCAG-compliant Structured Text condition compared to the Table condition, consistent with Hypothesis 2. Confidence in

the Scattered Text condition fell between the two, failing to support H1a. This suggests that reduced structural clarity may have hindered processing. Although cognitive load differences were not statistically significant, the trend toward higher perceived load in the Scattered Text condition supports the idea that WCAG-aligned structure reduces mental effort.

Together, these findings suggest that website visitors experience greater processing fluency when their capability to comprehend is supported by structured, goal-relevant content, and their opportunity to access and navigate that content is enhanced by accessible design.

However, further differences in confidence between content types suggest an additional mechanism at play. Specifically, participants reported higher confidence for incidental content in the Table condition (H4d contradicted). In both text-based conditions, confidence was more evenly distributed across content types, supporting H4b. Actual comprehension, however, remained lower for incidental content across all views.

These results likely stem from a confound related to both format and content type: incidental information, such as tuition fees, modules, and admission prerequisites, was consistently presented in a tabular format across all conditions. This format is naturally well-suited to such factual content, which typically requires little elaboration and is easily understood when displayed in a clear, scannable layout. As a result, users may have felt confident simply because the information was easy to locate and interpret, regardless of the overall page structure. By contrast, instructed content (e.g., programme aims, learning format) was underdeveloped in the Table condition but elaborated in the Structured Text condition, likely increasing confidence where task-relevant elaboration was provided.

Together, these findings suggest that confidence is shaped not only by structural clarity, but also by the match between content format and the reader's goal. This relationship can be understood

through the lens of Cognitive Fit Theory (Vessey, 1991), which proposes that users perform better when the structure of information aligns with the mental processes required to complete a task.

Our exploratory mediation analysis supports this interpretation: higher confidence was statistically accounted for by stronger perceptions of cognitive fit, as measured by agreement with the statement, “The structure of the webpage made it easy to find the information I needed to evaluate the programme.” This suggests that confidence was not merely a byproduct of readability, but may have arisen from users perceiving the layout as helpful for navigating the content.

This finding helps explain why progressive disclosure strategies, such as the bite-snack-meal format, are effective for guiding users through complex information. However, their effectiveness depends on a clear and navigable structure, as the affordance of navigability must be visible to the reader. WCAG-aligned design helps support this by applying familiar, widely adopted practices that improve scannability, visual hierarchy, and readability. In this context, accessibility is not just about compliance, but a practical way to support fluent, goal-oriented reading.

While confidence varied by condition and content type, overall comprehension scores remained statistically similar across formats, providing no support for H3 and H1b. However, as noted earlier, participants consistently demonstrated better comprehension of instructed content than incidental content (supporting H4c but not H4a). Among the instructed items, the Structured Text condition yielded significantly higher scores than the Table condition. Although no significant differences were found between the Scattered Text condition and the other formats, there was a trend toward lower comprehension compared to Structured Text. This pattern suggests that objective understanding was influenced not only by participants’ motivation but also by how well the content was elaborated and

aligned with the evaluation task. The trend also points to the possibility that limited adherence to WCAG structure may negatively impact comprehension.

Collectively, the results demonstrate that different types of content benefit from different presentation strategies. Factual, well-known information is well supported by tabular formats, which allow for quick scanning and comparison. In contrast, more complex or interpretive content benefits from structured, elaborated presentation aligned with accessibility guidelines. Confidence appears to be supported by both content alignment and layout clarity, while comprehension depends more heavily on motivation and the availability of well-explained, goal-relevant information. Together, these findings underscore the value of presenting programme information in a format that is both structurally clear and aligned with prospective students' goals, supporting their confidence and actual understanding during the evaluation process.

Theoretical Contributions

Whereas previous fluency research has primarily focused on internal task fluency either at the level of perceptual characteristics, such as font readability (Diemand-Yauman et al., 2011, Reber et al., 2004) or procedural regularity, such as consistent task steps (Williams et al., 2020), this study empirically demonstrates cognitive fit (Vessey, 1991) as a source of metacognitive ease. Unlike perceptual or procedural fluency, which often influence processing fluency without users' conscious awareness, the perception that a problem *can* be solved in the current environment reflects a more deliberate, goal-directed interaction. It emerges when individuals feel that the structure and layout of a webpage support their search for relevant information, creating a sense of orientation and control.

This perspective adds emphasis to the importance of using design strategies grounded in the assumption that people are solving problems, rather than passively viewing, perceiving, and responding to information. In this view, design should not only present information clearly but also support users' sensemaking and decision-making goals by facilitating orientation, exploration, and goal-directed action.

Limitations

While the study successfully manipulated webpage design features, the level of structural disorganisation introduced in the Scattered Text condition may not have been strong enough to produce the expected increase in cognitive load. As a result, the effects of more severe structural disfluency remain underexplored.

The sample also presents limitations. All participants held at least a bachelor's degree, which restricts the generalisability of the findings to prospective students with less academic experience. In addition, participants were recruited through the Prolific platform, whose users tend to be more digitally fluent and experienced with online tasks than the general population. This may have made it easier for them to navigate and interpret the webpages, potentially overestimating the effectiveness of the design interventions for less digitally skilled users.

A further limitation concerns the definition of task relevance. The study did not empirically investigate which pieces of information prospective students actually prioritise when evaluating a programme. The instructional tasks were designed to simulate plausible decision scenarios, but may not fully reflect real-world information needs. As a result, it remains uncertain to what extent the so-called "task-aligned" content in this study truly matched users' goals or expectations.

Future Research

While this study focused on the evaluation phase at the programme-page level, it is important to recognise that prospective students do not begin their journey there. Evaluation is preceded by the challenge of locating relevant programme pages, which is an activity shaped by the site's information architecture and content structure. The incidental finding that cognitive fit appears to foster confidence suggests that confidence-shaping mechanisms may already be at work before users arrive at a programme page. This underscores the need for future research to systematically examine this earlier stage of navigation and its potential role in shaping users' decision readiness.

Further research is also needed to clarify what *task alignment* actually means from the perspective of prospective students. In this study, the instructional tasks were designed to reflect plausible evaluation goals, but were not grounded in empirical research on what information users truly seek when making educational decisions. Future studies should explore which content types or page elements users consider most important, and how these preferences vary across user groups or decision contexts. This would enable a more grounded definition of task-aligned content and inform more precise interventions.

Finally, future research should investigate whether increased confidence in understanding leads to high-quality and meaningful behaviours, such as initiating an application, selecting a programme, or making an informed decision that a programme is not the right fit. While this study demonstrates that confidence can be shaped by design, it remains unclear whether that confidence translates into real-world decisions.

To examine the real-world impact of these findings, future work should test whether the design principles identified in this study can be applied effectively in institutional contexts, and whether they

meaningfully influence user behaviour. A proposal for such an intervention is presented in the following section.

Feasibility Testing of Study-Informed Design Guidelines

Based on the study's key findings, a set of design guidelines was developed to support university marketing teams in improving programme webpages (see Appendix E). The guidelines are grounded in three core principles: (1) relevant content should be present (2) content should be structured according to the principle of progressive disclosure, and (3) the design should enhance readability and scannability to minimise unnecessary cognitive effort.

The guidelines were framed as constructive feedback for marketing staff and are informed by Feedback Intervention Theory (Kluger & DeNisi, 1996) and the Actionable Feedback Model (Winstone et al., 2017). The proposed intervention aims to support behaviour change among university marketing teams through three key mechanisms: noticing the gap, by presenting feedback in a non-punitive and constructive format; feeling in control, by encouraging small, manageable steps rather than full redesigns; and having a clear plan, through tailored, actionable recommendations suited to local constraints and workflows.

To assess whether the guidelines would achieve their intended effect, a prototype-based interview was conducted with two marketing professionals closely connected to Estonian universities. Participants were introduced to the guidelines, encouraged to think aloud while reviewing them, and asked questions about the guidelines' clarity, perceived usefulness, and practical applicability.

Feedback suggested that the guidelines were not entirely easy to understand. Although both participants found the bite-snack-meal concept useful, they also asked where to place additional

information, such as videos or accommodation options for international students. This indicates that while the bite-snack-meal idea is understandable in theory, it may not function well as a practical framework for structuring content, as participants were unsure, for example, whether accommodation belongs in the "snack" or "meal" category.

WCAG alignment principle was perceived as very useful by one participant but dismissed by the other. This difference likely stemmed from their backgrounds: the first participant had experience in performance marketing and was aware of the SEO benefits that WCAG alignment can provide as a valuable side effect.

Both participants found the guidelines useful and applicable, particularly for internal communication to align teams around a shared goal. However, they noted that a visual representation of the principles would have made them easier to understand and apply.

One participant was already involved in a university website redesign and found the guidelines to be useful input for that process, but suggested enhancing their impact by including relevant marketing metrics. The other did not anticipate a redesign in the near future, noting that it was not the right time to initiate such changes.

Future steps could include research aimed at aligning the guidelines with measurable behavioural goals, such as increased time spent on programme pages, higher click-through rates to application resources, or improved conversion from interest to enquiry. Establishing these links could help assess the practical value of the intervention and encourage broader adoption.

References

Alter, A. L., & Oppenheimer, D. M. (2009). Uniting the Tribes of Fluency to Form a Metacognitive Nation. *Personality and Social Psychology Review*, *13*(3), 219–235. https://doi.org/10.1177/1088868309341564

Bruine De Bruin, W., Parker, A. M., & Fischhoff, B. (2007). Individual differences in adult decision-making competence. *Journal of Personality and Social Psychology*, *92*(5), 938–956. https://doi.org/10.1037/0022-3514.92.5.938

Chandler, P., & Sweller, J. (1991). Cognitive Load Theory and the Format of Instruction. *Cognition and Instruction*, *8*(4), 293–332. https://doi.org/10.1207/s1532690xci0804_2

Council of the European Union. (2021, December 14). *Council Resolution on a new European agenda for adult learning 2021–2030*. Publications Office of the European Union. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2021:504:FULL

Council of the European Union. (2022, June 27). *COUNCIL RECOMMENDATION of 16 June 2022 on a European approach to micro-credentials for lifelong learning and employability*. Official Journal of the European Union. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022H0627(02)

Desender, K., Boldt, A., & Yeung, N. (2018). Subjective Confidence Predicts Information Seeking in Decision Making. *Psychological Science*, *29*(5), 761–778. https://doi.org/10.1177/0956797617744771

Diemand-Yauman, C., Oppenheimer, D. M., & Vaughan, E. B. (2011). Fortune favors the ( ): Effects of disfluency on educational outcomes. *Cognition*, *118*(1), 111–115. https://doi.org/10.1016/j.cognition.2010.09.012

European Commission. (2020a, July 1). *European Skills Agenda for sustainable competitiveness, social*

fairness and resilience. European Commission. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0274

European Commission. (2020b, September 30). *Digital Education Action Plan 2021-2027*. European Commission. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0624

Folke, T., Jacobsen, C., Fleming, S. M., & De Martino, B. (2016). Explicit representation of confidence informs future value-based decisions. *Nature Human Behaviour*, *1*(1), 0002. https://doi.org/10.1038/s41562-016-0002

Garcia-Retamero, R., & Cokely, E. T. (2017). Designing Visual Aids That Promote Risk Literacy: A Systematic Review of Health Research and Evidence-Based Design Heuristics. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *59*(4), 582–627. https://doi.org/10.1177/0018720817690634

Kantar Public, & Learning and Work Institute. (2018). *Decisions of Adult Learners*. Department for Education (UK). https://assets.publishing.service.gov.uk/media/5ba38c7640f0b605e88d03e6/Decisions_of_adult_learners_Appendix.pdf

Keller, J. M. (2010). *Motivational Design for Learning and Performance: The ARCS Model Approach*. Springer US. https://doi.org/10.1007/978-1-4419-1250-3

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, *119*(2), 254–284. https://doi.org/10.1037/0033-2909.119.2.254

Lurie, N. H. (2004). Decision Making in Information-Rich Environments: The Role of Information Structure. *Journal of Consumer Research*, *30*(4), 473–486. https://doi.org/10.1086/380283

Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for

characterising and designing behaviour change interventions. *Implementation Science*, *6*(1), 42. https://doi.org/10.1186/1748-5908-6-42

Nielsen, J. (2006, December 3). Progressive Disclosure. *NNgroup*. https://www.nngroup.com/articles/progressive-disclosure/

OECD. (2020). *Increasing Adult Learning Participation: Learning from Successful Reforms*. OECD. https://doi.org/10.1787/cf5d9c21-en

O'Flahavan, L. (n.d.). The Bite, The Snack, And The Meal: How To Feed Content-Hungry Site Visitors. *E-Write*. https://ewriteonline.com/bite-snack-and-meal-how-to-feed-content-hungry-site-visitors/

Okuhara, T., Ishikawa, H., Okada, M., Kato, M., & Kiuchi, T. (2017). Designing persuasive health materials using processing fluency: A literature review. *BMC Research Notes*, *10*(1), 198. https://doi.org/10.1186/s13104-017-2524-x

Okuhara, T., Ishikawa, H., Ueno, H., Okada, H., Kato, M., & Kiuchi, T. (2020). Influence of high versus low readability level of written health information on self-efficacy: A randomized controlled study of the processing fluency effect. *Health Psychology Open*, *7*(1), 2055102920905627. https://doi.org/10.1177/2055102920905627

Ortiz, J. M., Teixeira, L. I., Falcão, N. N. L., Soki, E. A., & Almeida, R. M. (2024). Information simplification and default choices improve financial decisions: A credit card statement experiment. *Journal of Behavioral and Experimental Economics*, *110*, 102193. https://doi.org/10.1016/j.socec.2024.102193

Prochaska, J. O., & Velicer, W. F. (1997). The Transtheoretical Model of Health Behavior Change. *American Journal of Health Promotion*, *12*(1), 38–48. https://doi.org/10.4278/0890-1171-12.1.38

Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing Fluency and Aesthetic Pleasure: Is Beauty in

the Perceiver's Processing Experience? *Personality and Social Psychology Review*, *8*(4), 364–382. https://doi.org/10.1207/s15327957pspr0804_3

Rozenblit, L., & Keil, F. (2002). The misunderstood limits of folk science: An illusion of explanatory depth. *Cognitive Science*, *26*(5), 521–562. https://doi.org/10.1207/s15516709cog2605_1

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Schmutz, S., Sonderegger, A., & Sauer, J. (2016). Implementing Recommendations From Web Accessibility Guidelines: Would They Also Provide Benefits to Nondisabled Users. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *58*(4), 611–629. https://doi.org/10.1177/0018720816640962

Song, H., & Schwarz, N. (2008). If It's Hard to Read, It's Hard to Do: Processing Fluency Affects Effort Prediction and Motivation. *Psychological Science*, *19*(10), 986–988. https://doi.org/10.1111/j.1467-9280.2008.02189.x

Stacey, D., Lewis, K. B., Smith, M., Carley, M., Volk, R., Douglas, E. E., Pacheco-Brousseau, L., Finderup, J., Gunderson, J., Barry, M. J., Bennett, C. L., Bravo, P., Steffensen, K., Gogovor, A., Graham, I. D., Kelly, S. E., Légaré, F., Sondergaard, H., Thomson, R., … Trevena, L. (2024). Decision aids for people facing health treatment or screening decisions. *Cochrane Database of Systematic Reviews*, *2024*(1). https://doi.org/10.1002/14651858.CD001431.pub6

Sweller, J. (1988). Cognitive Load During Problem Solving: Effects on Learning. *Cognitive Science*, *12*(2), 257–285. https://doi.org/10.1207/s15516709cog1202_4

Vessey, I. (1991). Cognitive Fit: A Theory-Based Analysis of the Graphs Versus Tables Literature*. *Decision Sciences*, *22*(2), 219–240. https://doi.org/10.1111/j.1540-5915.1991.tb00344.x

Wigfield, A., & Eccles, J. S. (2000). Expectancy–Value Theory of Achievement Motivation. *Contemporary Educational Psychology*, *25*(1), 68–81. https://doi.org/10.1006/ceps.1999.1015

Williams, E. F., Duke, K. E., & Dunning, D. (2020). Consistency just feels right: Procedural fluency increases confidence in performance. *Journal of Experimental Psychology: General*, *149*(12), 2395–2405. https://doi.org/10.1037/xge0000779

Winstone, N. E., Nash, R. A., Parker, M., & Rowntree, J. (2017). Supporting Learners' Agentic Engagement With Feedback: A Systematic Review and a Taxonomy of Recipience Processes. *Educational Psychologist*, *52*(1), 17–37. https://doi.org/10.1080/00461520.2016.1207538

World Wide Web Consortium (W3C). (2024). *Web Content Accessibility Guidelines* (Version WCAG 2.2 (2023)). https://www.w3.org/TR/WCAG22/

Appendix A: Experimental Webpage Designs

To investigate how webpage presentation influences prospective students' comprehension and confidence, the study employed a between-subjects experimental design using three versions of a university programme webpage. Each version showcased the Applied Behavioural Science master's programme, designed to closely mirror the actual programme offered at the University of Tartu to preserve the ecological validity of the content. The conditions were systematically manipulated along two key dimensions: WCAG compliance and task alignment. The content and structure were inspired by the actual programme offered at the University of Tartu, ensuring ecological validity while allowing experimental control.

Elements that were not evaluated, such as the hero section, contact information, and curriculum overview, were kept consistent across all versions. This approach preserved ecological validity while allowing the study to isolate the effects of structural and content variation.

Table Condition

Participants assigned to the *Table Condition* viewed a simplified version of the programme page, where all key information was presented in a table format without narrative text. This format aimed to minimise cognitive load by structuring content into clearly labeled rows and columns. An image of the webpage can be viewed at: https://osf.io/5azus

Structured Text Condition

Participants assigned to the *Structured Text Condition* viewed a version of the programme page where the content was presented in structured narrative format. The design followed WCAG 2.2

principles, using clear headings, short paragraphs, and bullet points to improve readability and align the content with the decision-making task. This format aimed to enhance cognitive fit while maintaining a manageable cognitive load. An image of the webpage can be viewed at: https://osf.io/m6zdp

Scattered Text Condition

Participants assigned to the *Scattered Text Condition* viewed a version of the programme page where the same content was presented in an unstructured format. The page lacked consistent headings, had longer blocks of text, and no in-page navigation option. This condition was designed to increase cognitive load and reduce task-alignment, helping to isolate the effects of structure and accessibility on understanding. An image of the webpage can be viewed at: https://osf.io/5n6

Appendix B: Description of the WCAG Success Criterion Applied

WCAG 2.2 addresses a broad range of accessibility considerations, including interactivity, assistive technologies, and navigation across pages. This study focused solely on the criteria relevant to presenting long, static, text-only content. Several criteria were deliberately excluded due to contextual or practical considerations. For a complete overview of the WCAG 2.2 criteria applied in each condition, see Table C1. The following criteria were excluded:

- Criterion 3.1.5 - Reading Level was excluded due to the academic context. Still, clarity is prioritised but simplifying the language to a lower secondary level would risk distorting key concepts.
- Criterion 3.1.3 - Unusual Words was excluded due to practical limitations and lower relevance in this specific context. An evaluation using *de-jargon.com* (n.d.) flagged *quantitative*, *qualitative*, and *thesis* as low-usage terms. While these are less common in everyday language, they are widely understood in academic settings. That said, when addressing master's candidates from diverse academic backgrounds, it remains important to minimise jargon. Adding definitions (e.g. via tooltips or a glossary) could enhance clarity but was outside the scope of this study.
- Criterion 1.4.6 - Contrast (Enhanced) was selected over Criterion 1.4.3 - Contrast (Minimum)

Table B1

Overview of Implemented Web Content Accessibility Guidelines (WCAG) per Condition

WCA Guideline	Success Criterion	Implementation per Condition		
		Table	Structured Text	Scattered Text
1.4.6 Contrast (Enhanced)	Recommended contrast ratio of 7:1 for normal text, and 4.5:1 for large text.	Yes	Yes	Yes
1.4.8 Visual Presentation	Width is no more than 80 characters or glyphs (40 if CJK).	Yes	Yes	**No**
	Text is not justified (aligned to both the left and the right margins).	Yes	Yes	Yes
	Line spacing (leading) is at least space-and-a-half within paragraphs.	Yes	Yes	Yes
	Paragraph spacing is at least 1.5 times larger than the line spacing.	Yes	Yes	Yes
2.4.1 Bypass Blocks	A mechanism is available to bypass blocks of content that are repeated on multiple web pages.	Yes	Yes	**No**
2.4.6 Headings and Labels	Headings and labels describe topic or purpose.	Yes	Yes	Yes
2.4.9 Link Purpose (Link Only)	A mechanism is available to allow the purpose of each link to be identified from link text alone, except where the purpose of the link would be ambiguous to users in general.	Yes	Yes	Yes
2.4.10 Section Headings	Section headings are used to organize the content.	Yes	Yes	**No**

Note. In this study, *full WCAG alignment* referred only to compliance with criteria relevant to the presentation of long, static, text-only content. The Scattered Text condition was intentionally designed to violate three specific WCAG criteria in order to examine the impact of WCAG alignment on participants' confidence and comprehension.

Appendix C: Instructions Given to the Participants Before Web Exposure

The following instructions were presented to all participants immediately before they were randomly assigned to one of the webpage conditions:

Your Task

Imagine you are considering a master's degree and are exploring the Applied Behavioural Science programme. The webpage you are about to see is based on real information from a university, but it is part of a research study and not an official university site.

How to Approach the Task

As you explore the page, try to form a clear understanding of the programme. Focus especially on the following questions:

- What is the Applied Behavioural Science programme, and why is it relevant?
- Who is the programme designed for?
- What skills will you gain?
- How is the learning organised and delivered?

You may proceed once you feel confident you have a general sense of the programme — including who it's for, how you would study, and what skills you'd gain.

Time Limit & Navigation

- You will have up to 10 minutes to explore the programme webpage.
- You must stay on that page for at least 3 minutes before you can continue.
- The timer starts after you leave this instructions page.
  What Happens Next?

- You'll answer a short questionnaire about your experience.
- This helps us understand how people interpret programme information.

Important Notes

- You cannot return to the programme page once you leave it.
- You can revisit these instructions by clicking "Review Study Instructions" in the top navigation.

Appendix D: Questionnaire

Section 1: Confidence in Understanding

(Likert scale: Strongly Disagree – Strongly Agree)

1. I am confident that I know who this programme is designed for (e.g., relevant professions, industries, or roles).
2. I feel confident that I understand what Applied Behavioural Science is and what this programme aims to achieve.
3. I am certain about the skills I would gain by completing this programme.
4. I find the schedule and format of the lectures easy to understand.
5. I clearly understand the tuition cost of the programme.
6. [Attention Check] To show that you are reading carefully, please select "Somewhat Disagree" for this statement.
7. I feel confident that I understand the admission requirements for the programme.
8. I have a clear understanding of the modules in the Applied Behavioural Science programme.

Section 2: Objective Understanding

(Multiple-choice quiz: Only one correct answer per question)

9. Who is this programme primarily designed for?

- Recent psychology graduates looking to pursue a research career in behavioural science
- Professionals whose work involves influencing how others behave (correct)
- Communication specialists seeking training in public speaking and confidence-building

- Neuroscientists interested in lab-based behavioural research
- I don't know

10. What is the main aim of the Applied Behavioural Science programme?

- To help students become licensed psychologists
- To teach persuasive techniques for marketing
- To build evidence-based skills for influencing behaviour and designing better systems
- To train consultants in organisational change and development
- I don't know

11. Which of the following is a skill taught in this programme?

- Conducting laboratory experiments on rats
- Applying behavioural insights to design better messages, processes, or systems
- Performing statistical programming in R for big data analysis
- Administering clinical therapy sessions
- I don't know

12. What kind of study format do you expect this programme to follow?

- No scheduled sessions or deadlines; study online at your own pace
- Scheduled in-person classroom sessions every week
- Scheduled in-person sessions every two weeks, supported by structured online materials and recordings
- Independent online study with occasional optional sessions

- I don't know

13. What are the prerequisites for admission to the programme?

- 5 years of work experience
- A bachelor’s degree in the field of Psychology
- A master’s degree plus 5 years of work experience
- A master’s degree, or a bachelor’s degree plus 5 years of relevant work experience (correct)
- I don't know

14. What is the tuition cost for the full 2-year programme?

- €2600 total
- €1300 per semester, €5200 total (correct)
- €5200 per semester, €10400 total
- Tuition is free for EU citizens
- I don't know

15. Which module is not part of the Applied Behavioural Science study programme?

- Application (correct)
- Insight
- Evaluation
- Intervention
- I don't know

Section 3: Perceived Cognitive Load

(Likert scale: Strongly Disagree – Strongly Agree)

16. Understanding the information about this master's program required significant mental effort.
17. I felt rushed or pressured while processing the information on this webpage.
18. I had to work hard to process and evaluate the details of this master's program.
19. [Attention Check] To confirm your attention, please choose "Somewhat Agree" for this item.
20. (Reverse-scored) I felt I successfully understood and processed the information provided about this master's program.
21. I felt frustrated while navigating and understanding the information about this master's program.

Section 4: Perceived Cognitive Fit

(Likert scale: Strongly Disagree – Strongly Agree)

22. The structure of the webpage made it easy to find the information I needed to evaluate the programme.

Section 5: Demographics

(Multiple-choice & Open-ended)

23. What is the highest level of education you have completed?

- Bachelor's Degree
- Master's Degree
- Doctorate

- Other

24. What is your age?

- 18–21
- 22–24
- 25–34
- 35–44
- 45–54
- 55+

25. What is your gender?

- Male
- Female
- Other

26. Did anything feel unclear, unexpected, or give you new thoughts while reviewing the programme information?

    (Open-ended response)

Appendix E: University Programme Page Design Guidelines for Marketing Teams

The following guidelines were developed based on the findings of this study to help marketing teams design master's programme webpages that improve prospective students' confidence and comprehension during the evaluation process:

When a Prospective Student's Motivation Isn't the Problem, Your Master's Programme Page Might Be

The Hidden Cost of Unclear Information in University Programme Page

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What Do Prospective Graduate Students Actually Need From a Programme Page?

When someone lands on a master's programme page, they've already taken a meaningful step. They're curious. They're thinking seriously about their future. And they already have experience making academic choices, after all, they've completed a bachelor's degree.

At this stage, what helps most is clear, well-organised information. A calm, structured page allows them to focus, explore their options, and feel confident about the next step.

That's exactly the kind of moment a university has the opportunity to support.

Lead With Clarity, Not Persuasion

They may find value in learning about the university's values, alumni stories, or research partnerships. Persuasive elements such as testimonials, rankings, or upcoming events can also play a role, especially later in the decision-making journey.

Yet when someone is actively weighing their options, the most pressing questions are often more practical:

- Is this programme right for me?
- Will it fit into my schedule?
- Can I afford it?
- What will I actually gain?

There's no definitive list of what every prospective student wants to know. But if a student is able to answer these four questions confidently, they are likely in a much stronger position to make an informed decision.

The key question becomes: How can programme pages be designed to help students find those answers clearly and confidently?

What we've learned from testing different designs

Good design doesn't just make information look nice, it makes people feel capable. When information is structured clearly and aligns with how people evaluate options, it fosters confidence in understanding. And confidence isn't just a pleasant byproduct of clarity, it's a key predictor of decision-making. In complex choices like selecting a university programme, people are unlikely to act unless they feel sure they understand what they're considering. Clear design removes mental friction, allowing users to focus not on deciphering the page, but on asking the right question: *"Is this programme right for me?".* To explore how design influences understanding and confidence, we conducted an experiment.

In the experiment, participants were shown three different versions of a master's programme page. The content was consistent in terms of factual information, but each version varied in two important ways:

- **Content depth**: from minimal content in a compact table layout to fully elaborated text with explanatory paragraphs
- **Structure and readability**: from clearly structured content with headings and spacing, to an unstructured block of dense text

The groups we tested:

🔗 **Table View** — Minimalist layout with limited elaboration. Easy to skim, but poorly aligned with how users evaluate educational programmes.

🔗 **Structured Text View** — Fully elaborated content presented in a clear, accessible, and goal-aligned layout.

🔗 **Unstructured Text View** — The same elaborated content as above, but presented in a dense, unstructured block.

Despite containing the same core information, these versions produced different outcomes for confidence.

- In the **structured text view** participants felt more confident in what they understood.
- In the **unstructured text view**, confidence dropped slightly

- In the **table version**, confidence dropped significantly

Same facts. Different delivery. And for the student, that difference could mean the decision to move forward, or move on.

How can we apply this insight?

If structure and clarity help prospective students feel more confident, then our job is to make that easier, without requiring full-scale redesigns or massive time investments. Here's where to start.

Focus on the questions students are actually trying to answer

Before thinking about layout or branding, ask yourself: Does this page help someone answer these five questions?

- What is the programme about?
- Is this programme designed for someone like me?
- Will it fit into my schedule?
- Can I afford it?
- What will I actually gain?

Designing with these in mind doesn't mean removing other content but it does mean prioritising clarity over comprehensiveness, and structure over style.

Create content using the "bite–snack–meal" model

This model helps people engage with complex information in stages, starting with a quick overview and moving into deeper layers as needed.

Bite — A short summary at the top of the page. In two to three sentences, explain what the programme is about and include essential facts (preferably in a table-like skimmable format) like duration, diploma awarded, and tuition cost.

Snack — Clearly sectioned content that answers key questions relevant to the programme's target audience like:

- What is the main goal of the programme?
- What skills will I gain?
- How does the learning happen (online, hybrid, in-person)?
- Who is this programme designed for?

Meal: Additional details like full curriculum breakdowns, ECTS, admission requirements, and tuition rules should be made accessible via expandable sections or modals. This lets interested users dive deeper without being overwhelmed up front.

This structure gives prospective students control over how deeply they engage with the content. It helps them scan when they're exploring, and dive deep when they're ready, without feeling overwhelmed or lost.

Separate programme details from promotional content

Testimonials, event banners, and calls to action (CTAs) can add value to a programme page, but they should only appear *after* the core informational content has addressed prospective students' primary questions. Alternatively, they can be placed in sidebars or at the bottom of the page, where they won't interrupt the flow of decision-relevant information.

This approach reflects the belief that educational choices should not be marketed like consumer goods. Rather than persuading visitors through emotional appeals or promotional tactics, the goal should be to support a clear internal judgment: *Does this programme align with my goals, values, and constraints?*

When a user is still evaluating whether a programme fits their life, they benefit from uninterrupted focus on structured, relevant content. Attention-grabbing elements like promotional images or CTAs inserted mid-flow can act as distractors, drawing cognitive resources away from the evaluation task. This works through the same mechanism observed in unstructured layouts: increased friction and reduced clarity. Once initial understanding is formed, users are more receptive to testimonials or CTAs that reinforce or complement their emerging decision.

Avoid oversimplified or overly casual language

Even teenagers and college students don't necessarily appreciate overly hip tone or flashy design, as Nielsen Norman Group found. When making high-stakes decisions, students want clarity and respect, not gimmicks. Casual language that tries too hard can erode trust and add unnecessary cognitive effort.

Design interfaces for readability and findability

How information is presented can be just as important as the content itself. When programme pages are clearly structured with meaningful headings, consistent formatting, and logical grouping, users can quickly find what matters to them. This reduces mental effort and builds confidence in their understanding. Readability makes the content approachable. Findability ensures users can act on it. Together, they support decision-making by removing friction and strengthening confidence.

1 . Add clear section headings

Use headings that reflect what prospective students actually want to know, such as:

- *What is [programme name]?*
- *Who is [programme name] for?*
- *What You'll Learn to Do*
- *How You'll Learn*

2. Break long paragraphs into smaller ones

Keep blocks of text short, ideally 3–4 lines. Use bullet points or short lists when possible.

3. Put the basics at the top

Show the duration, format, location, and cost early on. These are dealbreaker filters. If students can't tell whether a programme fits their schedule, lifestyle, or budget, they're likely to give up, even if they're genuinely interested.

4. Shorten line lengths

Aim for around 60–75 characters (or around 650 px) per line. This makes the content easier to read and less overwhelming, especially on large screens.

⚡ **5. Bonus: Add in-page navigation**

If your programme page is long, consider including a sticky menu or a table of contents to help users jump between sections. This isn't essential but it's a nice improvement, especially on the desktop. If your CMS or design system doesn't currently support this, you can treat it as a small future upgrade request.

ℹ️ *While point 3 is based on our own research showing just how crucial findability is, the rest of these design tips are grounded in the Web Content Accessibility Guidelines (WCAG)—a widely adopted standard for making web content more accessible and user-friendly. You can find a clear, plain-English summary of these guidelines 🔗 here. It's always a smart move to treat these not just as suggestions, but as requirements for developers and designers alike. Accessible design benefits everyone.*

Addressing common concerns

Do we need to rebrand the university?
No. This is not about branding, it's about making the content easier to understand.

Do we need to rewrite everything from scratch?
No. Start with one or two key programmes. Test changes with real students. Learn and iterate.

Isn’t rewriting programme pages a huge time investment?
Not necessarily. You can use tools like ChatGPT to structure existing content around the four core questions. Editing is faster than writing from scratch.

Do we need development work?
Only if your CMS doesn’t allow flexible layout. If that’s the case, use this article accompanied by this design as a spec for requesting updates.

Will it cost a lot?
It depends on your setup. But improving structure and clarity can often be done without major investment and pays off by helping the right students move forward with confidence.

Final thought: Start with one page

This doesn’t have to be a massive project. Pick one programme page and try a simple test: take the current version and a clearer, better-structured version, then show both to a bachelor’s student who is considering applying to a master’s.

Ask them: *Which version made it easier to find the information you needed to evaluate the programme?*

No fancy tools needed. Just honest feedback. If the clearer version works better, you’ve already got a reason to keep going.

If we want to encourage lifelong learning, the first step is helping people feel more sure about their choices.

Let’s make it easier to say: *“Yes, this is for me.”*

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