Exploring Attitudes towards Embedding Education for Sustainable Development in Curriculum Design

Maria Toro-Troconis[1], Yuma Inzolia[2] & Norita Ahmad[3]

[1] Association for Learning Design and Education for Sustainable Development (ALDESD), Cheshire, United Kingdom

[2] UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC), Caracas, Venezuela

[2] American University of Sharjah, Sharjah, United Arab Emirates

Correspondence: Maria Toro-Troconis, ALDESD, Stapeley House, London Road Stapeley, Nantwich, Cheshire, CW57JW, United Kingdom. E-mail: mtoro@aldesd.org

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Abstract

This paper shares insights from the research conducted during the 2022-2023 Learning Design and Education for Sustainable Development Bootcamp. The Bootcamp was designed by the Association for Learning Design and Education for Sustainable Development (ADLESD) and delivered in collaboration with UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC). The Bootcamp is supported by the CoDesignS ESD Framework and has been executed in collaboration with several prestigious institutions. The study aimed to identify any changes in attitudes towards embedding Education for Sustainable Development (ESD) into curriculum design following the Bootcamp. Using a validated survey that measured four attitude components - affective, perceived control, usefulness, and behavioural - significant variations were observed in the latter three components post-Bootcamp. This shows an increased perception of ESD's practical value, participant confidence in implementing it, and readiness to adjust behaviours to accommodate ESD principles. However, the affective component, or emotional response to ESD, remained largely unchanged, likely due to the Bootcamp participants' self-selection. Particularly notable was the boost in the perceived control element, possibly due to the clear pedagogical framework and toolkit provided during the Bootcamp. This improvement in the Control component and the overall positive impact of the Bootcamp are consistent with feedback obtained from participants in the final evaluation survey. These findings indicate that the Bootcamp and the use of the CoDesignS ESD Framework and Toolkit Planner significantly increased participants' willingness, confidence, and ability to integrate ESD into curriculum design effectively.

Keywords: learning design, ESD, sustainability, SDGs, bootcamp, curriculum, toolkit

1. Introduction

Education forms the fundamental pillar of a sustainable development agenda, hinging upon individuals acquiring pertinent knowledge, skills, and attitudes to tackle worldwide challenges (UNESCO, 2017; Wilhelm, 2019). It is imperative that education undergoes transformation, empowering individuals to make well-informed choices and engage in both personal and collective efforts to reshape our societies and foster environmental stewardship (UNESCO, 2021). Recognised as an indispensable component of Sustainable Development Goal (SDG) 4, which pertains to quality education, Education for Sustainable Development (ESD) serves as a critical catalyst for the achievement of all other SDGs.

Nevertheless, while there has been a noticeable progression in Higher Education (HE) institutions incorporating sustainability into their programmes the inclusion of ESD in curriculum design requires a transition from knowledge-centric education to a competency-based approach. This shift calls for a transformative overhaul in curriculum design and teaching methodologies (Wals, 2014; Wiek et al., 2011).

In order to attain the goals of ESD, the necessary transformation and advancement of curriculum design and teaching practices demand the implementation of effective and scalable teacher training programmes (UNESCO, 2014;

UNESCO, 2018). This crucial need has served as the primary driving force behind the conception and delivery of the Learning Design and ESD Bootcamp supported by the CoDesignS ESD Framework and Toolkit.

Attitudes, as defined, represent states that emerge from the amalgamation of beliefs and manifest as enduring individual traits. These attitudes can significantly influence behaviour, making it crucial to identify and understand them to facilitate behavioural change (Snow, Corno & Jackson, 1996; Zimbardo, Ebbesen & Maslach, 1977). By pinpointing and addressing specific attitudes, it becomes possible to effectively modify individuals' behaviours and foster positive transformations. This recognition of the pivotal role attitudes plays underscores the importance of studying and addressing them in the design and delivery of the Learning Design and ESD Bootcamp (Toro-Troconis, et al, 2021)

1.1 Learning Design and ESD Bootcamp

The Learning Design and ESD Bootcamp has been designed by the Association for Learning Design and Education for Sustainable Development (ALDESD) and is delivered in collaboration with UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC), Manchester Metropolitan University, the American University of Sharjah, Glasgow University, and the Open University (ALDESD, 2023).

The Bootcamp is a flexible 8-week programme for academics, learning designers, educational developers/curriculum designers and students. The Bootcamp aims to develop the skills and competencies required to embed ESD in curriculum design supported by the CoDesignS ESD Framework and Toolkit (CoDesignS ESD, 2023).

By the end of the Bootcamp, the participants are able to: discuss the concept of sustainability and Sustainable Development Goals (SDGs); explain what ESD is and the difference it can make to curricula and pedagogy; discuss the concept of transformative pedagogies and the application of active learning methodology into learning and teaching practice; describe learning design concepts and approaches as well as the importance of the three pillars of the CoDesignS ESD Framework embedding ESD in curriculum design and design curriculum elements contributing to embedding ESD in educational practices using the CoDesignS ESD Toolkit Planner.

The Bootcamp has successfully trained over 100 participants across 36 diverse teams from an array of countries, including the United Kingdom, Mexico, Colombia, Argentina, Panama, Honduras, Ecuador, Peru, Chile, United Arab Emirates, and Australia.

Figure 1 illustrates the comprehensive Bootcamp experience, encompassing a diverse array of synchronous and asynchronous learning activities. These activities include engaging micro-lectures, live webinars featuring guest speakers, weekly assignments to promote active participation, interactive discussions and polls and immersive case studies delivered via UNESCO IESALC Learning Management System (LMS), as well as dedicated mentoring and ongoing support throughout the duration of the Bootcamp.

Figure 1. Learning Design and ESD Bootcamp Journey and experience (ALDES, 2023)

1.2 CoDesignS ESD Framework

The CoDesignS ESD framework is the result of thorough research in the areas of learning and curriculum design (Toro-Troconis et al., 2019; Lewis, 2020; Toro-Troconis et al., 2021; Toro-Troconis et al., 2022; Ahmad et al., 2023). This framework stands out by going beyond merely identifying the competencies required for ESD. It centres on the design and execution of these competencies in a manner that engages all domains of learners: the cognitive (head), the socio-emotional (heart), and the behavioural (hands) (Cotton & Winter, 2010; Sipos et al., 2008).

The cognitive domain addresses knowledge and understanding of ESD, stimulating intellectual capabilities to comprehend the concepts of sustainability. The socio-emotional domain focuses on nurturing attitudes, values, and feelings that align with ESD principles. This ensures learners are emotionally invested in the cause and can relate it to their personal and social contexts. The behavioural domain, on the other hand, is about promoting actions that align with sustainable development, encouraging learners to translate their knowledge and emotions into tangible actions.

The CoDesignS ESD framework embodies transformative pedagogies and teaching practices to promote a holistic learning experience. It ensures that ESD is not only comprehended as a theoretical concept but is also internalised on an emotional level and is enacted in daily behaviours. Through such comprehensive approach, the framework fosters a deeper, multidimensional engagement with ESD, reinforcing not only what learners know but also how they feel and what they do in relation to sustainable development.

Figure 2 below presents the CoDesignS ESD pillars:

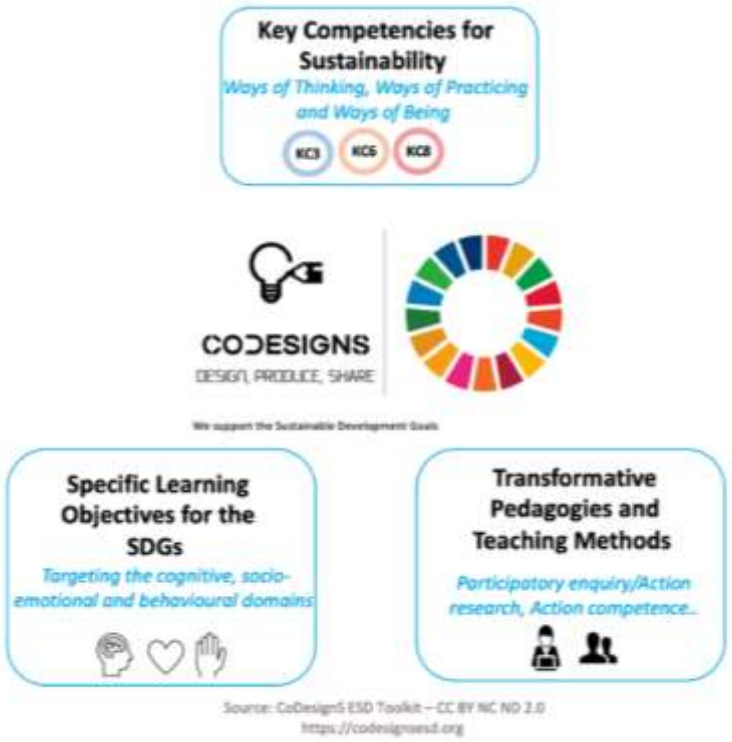

Figure 2. CoDesignS ESD pillars - CC BY NC ND 2.0

Pillar 1: Key Competencies for Sustainability These competencies, which hold significance across all Sustainable Development Goals (SDGs) (UNESCO, 2017), have been categorised as "Ways of Thinking," "Ways of Practicing," and "Ways of Being" in the ESD guidelines by the QAA and Advance HE (2021). As presented in Figure 3 below, the competencies are coded accordingly, for example KC3 refers to critical thinking competency; KC6 refers to integrated problem-solving competency and so on.

Figure 3. CoDesignS ESD Key competencies for sustainability - CC BY NC ND 2.0

Pillar 2: Specific Learning Objectives for the SDGs Within this pillar, emphasis is placed on fostering Transformative Sustainability Learning (TSL), whereby educators strive to incorporate the three domains of learning—the cognitive, socio-emotional, and behavioural domains, also referred to as the head, heart, and hands—in order to actively engage students in a profound educational journey (Sipos et al., 2008; Cotton & Winter, 2010).

Figure 4. CoDesignS ESD Specific learning objectives for the SDGs - CC BY NC ND 2.0

Pillar 3: Transformative Pedagogies and Teaching Methods These principles encourage the exploration of various learning approaches, such as participatory inquiry and action research, where students delve into issues that hold personal significance to them (Tilbury, 2007). Collaboration, problem-solving orientation, interdisciplinarity, and transdisciplinarity are also promoted, along with the integration of formal and informal learning (UNESCO, 2017).

The development of the CoDesignS ESD Toolkit, including its collection of cases and the CoDesignS ESD Toolkit Planner (CoDesignS ESD, 2023), serves the purpose of facilitating the implementation of the CoDesignS ESD framework by promoting a collaborative and participatory approach.

Figure 5. CoDesignS ESD Toolkit cards (CoDesignS ESD, 2023)

The CoDesignS ESD Toolkit offers a transformative strategy for curriculum design, simplifying the integration of ESD principles in a practical and digestible manner. This tool breaks down the intricate process of curriculum design into smaller, manageable tasks, providing a structured method for embedding sustainability concepts systematically within the curriculum. Additionally, the CoDesignS ESD Toolkit Planner features compelling visualisations as presented in Figure 6 below, serving as effective guides throughout the curriculum design process.

Figure 6. CoDesignS ESD Toolkit Planner Dashboard - © Copyright 2022 CoDesignS ESD

2. Method

This study involved adapting and using the "*My feelings when playing* games" survey, originally developed by Bonanno and Kommers (2008). The survey instrument was modified to measure four components: affective components, perceived usefulness, perceived control, and behavioural components. Consisting of 17 statements that depict behaviours associated with embedding ESD in curriculum design, supported by the CoDesignS ESD Framework, participants responded using a five-point Likert scale. The survey aimed to capture both positive and negative feelings, including situations involving fear, lack of control, and hesitation. The survey was delivered to the participants via the Bootcamp LMS. The scores of the selected statements were coded in SPSS considering reverse scoring for unfavourable statements.

The scores of the selected statements were coded in SPSS considering reverse scoring for unfavourable statements.

2.1 Research Questions

RQ I: Is there any difference regarding the identified four attitudinal components making up general attitude towards embedding ESD in curriculum design?

RQ II: Is there any gender-related difference regarding the identified four attitudinal components making up general attitude towards embedding ESD in curriculum design?

Subjects

This investigation involved 253 responses in total between the pre and post-tests from Spanish and English participants in the Bootcamps delivered between 2022 and 2023. The gender distribution of the respondents was 62.05% female (n = 157), 37.94% male (n = 96).

Instruments

The survey ‘My feelings when embedding ESD in curriculum design’ comprises 17 statements. Five statements related

to the *affective component*, five statements about *perceived usefulness*, five statements about *perceived control* and two statements about *behavioural components*. All statements describe behaviours while embedding ESD in curriculum design. Statements were scored using a 5-point Likert scale.

Table 1. Questions associated with each Attitudinal Components

Components	Questions
Affective components	Given the opportunity to embed ESD in curriculum design, I don't think I'll have problems with it.
	I wouldn't hesitate to embed ESD in curriculum design.
	I don't feel uneasy about embedding ESD in curriculum design.
	Embedding ESD in curriculum design does not scare me.
	Embedding ESD in curriculum design does not make me feel uncomfortable.
Perceived usefulness	Embedding ESD in curriculum design is very important for the delivery of the programme(s) I am involved with.
	Embedding ESD in curriculum design can enhance the learning experience to a degree which justifies the extra effort.
	Most things that one can get from embedding ESD in curriculum design can be obtained or arrived at through other means.
	Embedding ESD in curriculum design provides more interesting and imaginative ways for learning.
	Embedding ESD in curriculum design makes it possible to learn more productively.
Perceived control	I could teach myself most of the things I need to know about embedding ESD in curriculum design.
	I am in complete control when embedding ESD in curriculum design.
	I don't need an experienced person nearby when embedding ESD in curriculum design.
	If I get problems embedding ESD in curriculum design, I can usually solve them one way or the other.
	I do not need somebody to tell me the best way to embed ESD in curriculum design.
Behavioural components	I wouldn't avoid designing a course if it involves embedding ESD.
	I would embed ESD in curriculum design regularly.

3. Results

Table 2. Descriptive Statistics for the Four Attitudinal Components

Descriptive Statistics					
Components	**TEST**	**GENDER**	**Mean**	**Std. Deviation**	**N**
Affective	Pre	Male	4.20	.760	48
		Female	4.32	.676	80
		Total	4.28	.708	128
	Post	Male	4.47	.608	47
		Female	4.40	.645	76
		Total	4.43	.629	123
Usefulness	Pre	Male	4.00	.358	48
		Female	4.08	.437	80
		Total	4.05	.410	128
	Post	Male	4.20	.378	47
		Female	4.17	.520	76
		Total	4.18	.469	123
Control	Pre	Male	2.49	.547	48
		Female	2.39	.562	80
		Total	2.43	.556	128
	Post	Male	3.00	.805	47
		Female	3.04	.751	76
		Total	3.02	.769	123
Behaviour	Pre	Male	4.11	.724	48
		Female	4.28	.650	80
		Total	4.22	.681	128
	Post	Male	4.46	.658	47
		Female	4.39	.690	76
		Total	4.42	.676	123

The group statistics in table 2 above compared male and female responses on four main components: affective components, Usefulness component, Control components, and Behavioural components. The number of participants (N), mean, standard deviation, and standard error of the mean are among the parameters presented.

For the *Affective component*, both pre-test and post-test scores were analysed. Prior to the intervention, the mean score for males was 4.20 (SD = 0.760), indicating a moderately positive affective attitude. Females had a slightly higher mean score of 4.32 (SD = 0.676), suggesting a somewhat more positive affective attitude. When considering the total sample, the mean affective score was 4.28 (SD = 0.708) for the pre-test phase.

Following the intervention, the mean affective score increased for both males and females. Males displayed a mean score of 4.47 (SD = 0.608), indicating a further enhancement of their affective attitude. Similarly, females showed a mean score of 4.40 (SD = 0.645), representing a slight improvement. When examining the total sample, the post-test mean affective score was 4.43 (SD = 0.629), suggesting an overall positive affective shift after the intervention.

Moving on to the *Usefulness compo*nent, pre-test scores indicated a moderately positive attitude towards the usefulness of the subject matter. Males had a mean score of 4.00 (SD = 0.358), while females had a slightly higher mean score of 4.08 (SD = 0.437). The total sample presents a mean usefulness score of 4.05 (SD = 0.410) for the pre-test phase.

After the intervention, both males and females showed an increase in their perceived usefulness. Males had a mean score of 4.20 (SD = 0.378), indicating a higher perception of usefulness. Females displayed a mean score of 4.17 (SD =

0.520), representing a similar increase. Considering the total sample, the post-test mean usefulness score was 4.18 (SD = 0.469), suggesting an overall enhancement in perceived usefulness after the intervention.

For the *Control component*, the pre-test scores reflected a moderate level of perceived control. Males had a mean score of 2.49 (SD = 0.547), while females had a slightly lower mean score of 2.39 (SD = 0.562). The total sample presents a mean control score of 2.43 (SD = 0.556) for the pre-test phase.

Following the intervention, both males and females demonstrated an increase in their perceived control. Males had a mean score of 3.00 (SD = 0.805), indicating a higher perception of control. Females displayed a mean score of 3.04 (SD = 0.751), representing a similar increase. Considering the total sample, the post-test mean control score was 3.02 (SD = 0.769), suggesting an overall improvement in perceived control after the intervention.

Lastly, for the *Behaviour component*, the pre-test scores indicated a positive attitude towards engaging in the desired behaviour. Males had a mean score of 4.11 (SD = 0.724), while females had a slightly higher mean score of 4.28 (SD = 0.650). The total sample presents a mean behaviour score of 4.22 (SD = 0.681) for the pre-test phase.

Following the intervention, both males and females displayed an increase in their intended behaviour. Males had a mean score of 4.46 (SD = 0.658), indicating a higher intention to engage in the desired behaviour. Females displayed a mean score of 4.39 (SD = 0.690), representing a similar increase. Considering the total sample, the post-test mean behaviour score was 4.42 (SD = 0.676), suggesting an overall strengthening of the intention to engage in the desired behaviour after the intervention.

Table 3. Paired Sample T test for comparing the pre and post test on four attitudinal components.

Paired Samples Test								
Pair	Components	Test	Paired Differences			t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean			
1	Affective components	Pre &Post	-.130	.845	.076	-1.694	121	.093
2	Usefulness components	Pre &Post	-.130	.495	.045	-2.892	121	.005
3	Control components	Pre &Post	-.603	.850	.077	-7.842	121	.000
4	Behavioural components	Pre &Post	-.184	.728	.066	-2.799	121	.006

Paired samples t-tests were conducted to compare the paired differences between pre-test and post-test scores for each component.

For the *Affective components*, the mean paired difference was -0.130 (SD = 0.845, SE = 0.076). The t-value was -1.694, with 121 degrees of freedom (df), resulting in a p-value of 0.093. This indicates that there was no statistically significant difference in the Affective component scores between the pre-test and post-test conditions.

Regarding the *Usefulness components*, the mean paired difference was -0.130 (SD = 0.495, SE = 0.045). The t-value was -2.892, with 121 degrees of freedom (df), resulting in a p-value of 0.005. This suggests that there was a statistically significant increase in the Usefulness component scores from pre-test to post-test.

For the *Control components*, the mean paired difference was -0.603 (SD = 0.850, SE = 0.077). The t-value was -7.842, with 121 degrees of freedom (df), resulting in a p-value of less than 0.001. This indicates a statistically significant increase in the Control component scores from pre-test to post-test.

Regarding the *Behavioural components*, the mean paired difference was -0.184 (SD = 0.728, SE = 0.066). The t-value was -2.799, with 121 degrees of freedom (df), resulting in a p-value of 0.006. This suggests that there was a statistically significant increase in the Behavioural component scores from pre-test to post-test.

These findings indicate that there were significant differences in the scores for the Usefulness, Control, and Behavioural components between the pre-test and post-test conditions. However, no significant difference was found in the Affective component scores.

Table 4. Two way Anova test for comparing the pre and post test on four attitudinal components based on Gender

	Tests of Between-Subjects Effects					
Components	Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Affective	Corrected Model	2.054[a]	3	.685	1.518	.210
	Intercept	4466.309	1	4466.309	9903.478	.000
	TEST	1.833	1	1.833	4.065	.045
	GENDER	.041	1	.041	.091	.763
	TEST * GENDER	.545	1	.545	1.209	.273
	Error	111.393	247	.451		
	Total	4866.040	251			
	Corrected Total	113.447	250			
	a. R Squared = .018 (Adjusted R Squared = .006)					
Usefulness	Corrected Model	1.322[a]	3	.441	2.271	.081
	Intercept	3991.507	1	3991.507	20565.817	.000
	TEST	1.242	1	1.242	6.398	.012
Usefulness	GENDER	.045	1	.045	.231	.631
	TEST * GENDER	.206	1	.206	1.063	.304
	Error	47.939	247	.194		
	Total	4297.320	251			
	Corrected Total	49.261	250			
	a. R Squared = .027 (Adjusted R Squared = .015)					
Control	Corrected Model	22.634[a]	3	7.545	16.781	.000
	Intercept	1758.939	1	1758.939	3912.187	.000
	TEST	19.782	1	19.782	44.000	.000
	GENDER	.035	1	.035	.078	.781
	TEST * GENDER	.295	1	.295	.656	.419
	Error	111.052	247	.450		
	Total	1991.120	251			
	Corrected Total	133.686	250			
	a. R Squared = .169 (Adjusted R Squared = .159)					
Behavioural	Corrected Model	3.455[a]	3	1.152	2.504	.060
	Intercept	4389.902	1	4389.902	9543.730	.000
	TEST	3.073	1	3.073	6.681	.010
	GENDER	.159	1	.159	.347	.557
	TEST * GENDER	.776	1	.776	1.688	.195
	Error	113.614	247	.460		
	Total	4794.250	251			
	Corrected Total	117.070	250			
	a. R Squared = .030 (Adjusted R Squared = .018)					

The two-way ANOVA tests for comparing the pre and post-test scores on four attitudinal components based on gender were carried out:

For the *Affective component*, the two-way ANOVA revealed a non-significant main effect of the test ($F(1, 247) = 1.518$, $p = .210$) and gender ($F(1, 247) = .091$, $p = .763$), as well as a non-significant interaction effect between the test and gender ($F(1, 247) = 1.209$, $p = .273$). The adjusted R-squared value for the model was .006, indicating that only a small proportion of the variance in the Affective component scores could be explained by the test and gender factors.

Regarding the *Usefulness component*, the two-way ANOVA indicated a non-significant main effect of the test ($F(1, 247) = 2.271$, $p = .081$) and gender ($F(1, 247) = .231$, $p = .631$), as well as a non-significant interaction effect between the test and gender ($F(1, 247) = 1.063$, $p = .304$). The adjusted R-squared value for the model was .015, suggesting that the test and gender factors accounted for only a small portion of the variance in the Usefulness component scores.

For the *Control component*, the two-way ANOVA revealed a significant main effect of the test ($F(1, 247) = 16.781$, $p < .001$), indicating that there was a significant difference in the Control component scores between the pre and post-tests. However, there was no significant main effect of gender ($F(1, 247) = .078$, $p = .781$), and the interaction effect between the test and gender was also non-significant ($F(1, 247) = .656$, $p = .419$). The adjusted R-squared value for the model was .159, suggesting that the test factor explained a moderate proportion of the variance in the Control component scores.

Regarding the *Behavioural component*, the two-way ANOVA showed a non-significant main effect of the test ($F(1, 247) = 2.504$, $p = .060$), gender ($F(1, 247) = .347$, $p = .557$), and the interaction effect between the test and gender ($F(1, 247) = 1.688$, $p = .195$). The adjusted R-squared value for the model was .018, indicating that the test and gender factors accounted for only a small portion of the variance in the Behavioural component scores.

In summary, the two-way ANOVA results indicated that there were no significant effects of participating in the Bootcamp and gender on the Affective, Usefulness, and Behavioural components. However, there was a significant main effect of participating in the Bootcamp on the Control component, suggesting a difference in scores between the pre and post-tests. The impact of gender on the attitudinal components was not statistically significant.

4. Discussion

The study presents several interesting findings, providing insights into the impact of the Learning Design and ESD Bootcamp programme and the application of the CoDesignS ESD Framework and Toolkit on various attitudinal components. Specifically, significant differences were observed in the scores for the Usefulness, Control, and Behavioural components between the pre-test and post-test conditions. However, no significant difference was found in the Affective component scores, which encompass feelings of confidence and ease when integrating ESD into curriculum design. This lack of significant difference in the Affective component can be attributed to the self-selection of participants in the Bootcamp.

Similarly, the Usefulness and Behavioural components of the survey demonstrate the participants' readiness to integrate Education for Sustainable Development (ESD) into curriculum design. These components serve as indicators of the perceived benefits and practicality of incorporating ESD in educational settings.

The Usefulness component specifically refers to the participants' belief in the practical relevance of ESD, and their perception of how its inclusion could enhance the overall learning experience. This perspective on the utility of ESD in curriculum design is crucial for encouraging educators to adopt sustainable education practices.

The Behavioural component, on the other hand, signifies the willingness of participants to act on these beliefs, indicating a readiness to translate theoretical understanding into practice. This willingness can be propelled by both intrinsic and extrinsic motivations.

Intrinsic motivation comes from the participants' personal conviction and commitment to sustainable development. It manifests when individuals recognise the inherent value in such an undertaking and are driven by an internal desire to contribute to a sustainable future.

Extrinsic motivation, on the other hand, can be derived from external factors such as institutional support, policy mandates, or societal expectations. In this context, it may involve recognition from peers, incentives from educational institutions, or the positive impact on students' learning outcomes.

These motivations work together to increase the participants' willingness to engage actively in embedding ESD in curriculum design. Thus, a shift in the Usefulness and Behavioural components signifies that participants are not just comprehending the importance of ESD, but also showing a greater readiness to put these principles into practice in their curriculum design.

The substantial impact of participating in the Bootcamp on the Control component can be traced back to the provision of a comprehensive pedagogical framework and toolkit. The Control component in this context refers to the participants' perceived ability to execute and manage the integration of Education for Sustainable Development (ESD) into curriculum design.

This positive shift can be largely credited to the use of the CoDesignS ESD Framework and Toolkit Planner. This unique toolkit served as an invaluable resource throughout the Bootcamp, providing clear guidelines and strategies for implementing ESD. By offering concrete steps and tactics, it empowered participants with the necessary knowledge and skills to incorporate ESD principles into their respective curricula effectively.

The toolkit facilitated the establishment of a "common language" among participants, promoting a uniform understanding and approach towards embedding ESD into curriculum design. This common ground served to streamline the integration process, minimising potential discrepancies and misunderstandings.

This observed influence of the toolkit on the Control component corroborates feedback received from participants in the final evaluation survey following the completion of the Bootcamp. Participants widely recognised the Toolkit as a pivotal element in their learning journey, highlighting its role in simplifying the understanding and implementation of the ESD principles.

The CoDesignS ESD Toolkit, as part of the Learning Design and ESD programme, played a central role in guiding participants' development. It provided a roadmap to navigate the essential pedagogical elements of the CoDesignS ESD pillars. These pillars, fundamental to the CoDesignS ESD Framework, were seamlessly integrated into participants' understanding and practices, thanks to the effective use of the toolkit. This further highlights the profound and significant impact the Bootcamp had on empowering participants to control the integration of ESD into their curriculum design. In conclusion, the study's results shed light on the significant impact of the Learning Design and ESD Bootcamp programme, highlighting the effectiveness of the CoDesignS ESD Framework and Toolkit in facilitating the integration of ESD principles into curriculum design.

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