

Student Engagement in Virtual Learning: The Self-Determination Theory Perspective

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Abstract

The exploratory case study explored how the lecturers motivate the students to engage in team-based online learning and how technologies in e-learning and remote classrooms motivate student engagement. Engagement is a multidimensional construct that includes behaviour, emotions, and cognition, essential in learning outcomes. Involving 101 undergraduate students, questionnaires and virtual interviews were conducted with the participants to elicit their perceptions and experiences concerning student engagement. Following the Self-Determination Theory framework of Deci and Ryan (1985), this study proved that students' engagement in the team-based online learning model is based on three perspectives: competence, sense of belonging, and autonomy. The theory highlights the importance of motivation and fulfilment of three basic human needs: autonomy, competence and relatedness. Data was collected through interviews and questionnaires focusing on the perceptions and experiences of undergraduate students who had participated in fully online learning for four semesters. Thematic analysis was used to analyze data divided into categories based on the Self-Determination Theory framework. The findings reveal that students' engagement in team-based online learning is influenced by their need for competence, belonging, and autonomy. Overall, this research highlights the importance of addressing student engagement in online learning and provides insight into how lecturers and technology can motivate and enhance student engagement in team-based online learning. Lecturers must continually adapt their instructional strategies and leverage technology to maintain and increase student engagement during the online learning experience.

Keywords: autonomy, competence, self-determination theory, sense of belonging, and student engagement

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Introduction

The COVID-19 pandemic has created fully online teaching and learning where teachers and students use digital or networked technologies to make learning and teaching possible. The Coronavirus pandemic has impacted human lives and education fields. All face-to-face classes were suspended to minimize the spread of COVID-19. Several previous studies have shown that teachers faced such significant challenges as high levels of stress and anxiety because of problems with online learning. Many needed to familiarise themselves with the online learning environment (Chiu, 2021).

Although school closings and online instruction can save lives, they also lead to challenges. For instance, not all schools have online learning systems, likely contributing to learning setbacks. Additionally, these closures could affect students who depend on their schools for meals and parents who rely on schools for childcare programs (Binkley, 2020). Many problems emerged with online courses' quality that require experienced instructional designers and more significant assistance with video and multimedia components (Austin, 2010). In addition, the problems also come from the policies of online learning and remote teaching. Internet connection, IT equipment, limited collaborative learning opportunities, reduced learning motivation, and increasing learning burdens are other problems faced during online teaching and learning activities (Yan, 2021; Yates et al., 2021). The need for high digital literacy and the use of relevant information, as well as communicating with others through technological devices, is one of the obstacles to implementing online learning. Students who lack this ability may experience difficulties in online learning (Barbour & Reeves (2009). Based on the data, it has been proven that many students in Finish High School experience technical problems during the exam period many students in Finish high school experienced in increasing amounts of technical problems. They deal with technical applications (Niemi & Kousa, 2020).

The prior findings provided valuable insights into the issues students and teachers experienced during online learning, information about teaching and learning activities, and how the students engage in class, which should have been mentioned more. During online learning, various technology, logical practices, and technological use are implemented during remote learning. However, one of the most critical challenges teachers should tackle engaging students in fully online courses or classes. This research explored how the lecturers motivate the students to engage in team-based online learning and how technologies in e-learning and remote classrooms motivate student engagement. Overall, this study aims to shed light on the challenges teachers face in engaging students in fully online courses or classes and provide insight into practical approaches and strategies that encourage student motivation and engagement in team-based online learning.

Literature Review

The COVID-19 pandemic forced all schools and universities to switch to online learning, and various pedagogic practices and the use of technology were implemented as a consequence of online learning applications. The quality of student involvement in teaching and learning activities is an essential part that needs attention. Some engagement experts highly value engagement's importance in school and organized school contexts (Fredricks, 2011; Zepke, 2015). Engagement here can provide a richer picture of learning by incorporating aspects of behavior, emotion, and cognition into one multidimensional construct. Engagement is seen as a

glue linking the classroom, personal background, and the broader community since it becomes an essential aspect of contributing to learning. In Higher Education (HE), as seen from a structural perspective, student engagement reduces the role of student agency (Adi Badiozaman., Leong., & Jikus, 2020). It is a critical facilitator of retention, persistence, and success (Green, 2018; Kahu & Nelson, 2018).

Student engagement, which is energized by motivation, as explained by Self-Determination Theory (SDT), is a prerequisite for the success of virtual learning (Chiu, 2021). Deci and Ryan (1985) provide an appropriate framework. They argued that there are three basic human needs: autonomy, competence, and relatedness as a source of students' inherent and proactive motivation. The three needs of SDT, namely the support of autonomy, structure, and involvement, can foster students' interests and encourage them to engage in learning out of volition instead of externally imposed pressure (Hornstra et al., 2018). SDT is a theory of motivation that uses traditional empirical methods to build its theory and to inform its classroom applications. Edward L. Deci is one of the founders of SDT and has made significant contributions to the field of motivation and self-determination. He has extensively researched intrinsic and extrinsic motivation, focusing on supporting autonomy for increasing motivation and well-being.

Concerning the self-determination theory (SDT), several scholars in the field have contributed to the understanding and application of the theory, lending support to the work of Edward L. Deci and Richard M. Ryan. Below are some leading experts who have made significant contributions to SDT.

Self-determination theory (SDT) posits that humans have an inherent tendency to be curious and interested in learning and expanding their Knowledge. However, the educational environment often introduces external controls that can undermine the teacher-student relationship and hinder the natural volitional processes involved in effective learning. A large body of empirical evidence based on SDT suggests that intrinsic and autonomous forms of extrinsic motivation contribute to optimal engagement and learning outcomes in educational settings. Students are more likely to engage and experience effective learning when intrinsically motivated or independently motivated. Therefore, SDT has significant implications for classroom practices and educational reform policies. This suggests that the educational environment must foster intrinsic and autonomous forms of extrinsic motivation while supporting students' basic psychological needs. In doing so, educators can create engaging learning environments that promote optimal learning outcomes, student well-being, and meaningful educational reform (Fousiani et al., 2014).

In addition, Sheldon, & Gunz (2009) state that Self-determination theory (SDT) posits 3 evolving psychological needs for autonomy, competence, and relatedness. Many studies have established that all three experiences are essential for well-being. Three studies using cross-sectional, experimental, and longitudinal methodologies prove that perceived deficits in autonomy, competence, and relatedness evoke a corresponding desire to acquire missing experiences. However, positive satisfaction from perceived need satisfaction does not predict reduced desire for the matched need. Implications for homeostatic, evolutionary, and humanistic perspectives on basic psychological needs are discussed.

Several scholars have contributed to the field of SDT, supporting the work of Deci and Ryan. Their study has reinforced the notion that intrinsic motivation and autonomous forms of extrinsic motivation are conducive to optimal learning outcomes and engagement. In addition, research has shown that the three developmental psychological needs proposed by SDT

(autonomy, competence, and relatedness) are essential for well-being. A perceived deficit in this need can trigger a desire to gain the missing experience. However, achieving satisfaction in one need does not reduce the desire to satisfy other suitable needs. These findings have implications for multiple perspectives on basic psychological needs. In summary, SDT and its emphasis on motivation, supporting autonomy, and meeting basic psychological needs provide valuable insights for driving student engagement in online learning and beyond. Understanding and applying SDT can improve educational practice, enhance student well-being, and contribute to meaningful education reform.

Method

My research followed an exploratory case study in the context of virtual learning. A case study was used since this study explored the phenomenon of team-based learning models under the context of online learning. It used interviews and questionnaires to describe the cases in detail. This study described the students' engagement during the online class teaching-learning process using the self-determination theory of Deci and Ryan's theory (1985).

Participants

The exploratory case study took place in the context of virtual learning. The participants of this study already joined fully online learning for four semesters because of the Coronavirus pandemic. The lecturer usually delivered the materials using lecturing and discussion techniques followed by pair works or group works as parts of the team-based learning model. The online learning platforms used were Zoom, Google Meet, or video conference (Big Blue Button.). Following a virtual conference meeting, team-based activities assisted by technologies such as YouTube, Google files, and videos were implemented.

The team-based learning models were implemented during the teaching-learning activities. The team-based learning model included grouping students into diverse teams of five to seven students that work together throughout the class (Michaelsen & Bauman-Knight, 2004). The instructional designs applied were Analysis, Design, Development, Implementation, and Evaluation following ADDIE Branch's theory (2009).

Involving 101 undergraduate students in completing the questionnaires and ten students to be interviewed to ensure the trustworthiness of the data, this study was deployed to explore how the lecturers motivate the students to engage in team-based online learning and how technologies in e-learning and remote classrooms motivate student engagement. The 101 students are spread across twenty departments of the university. The participants of this study were selected randomly based on their readiness to give opinions. In the study, the researcher approached the students with the support of the head of the students' association.

Instruments of Data Collection

Before the data collection, the author held a virtual meeting with students to give them detailed information on the consent form and distributed informed consent form sheets. In-depth virtual interviews were also conducted with the participants to elicit their perceptions and experiences about the student's engagement in team-based online learning with the determination theory (SDT) framework. Based on the SDT theory of Deci and Ryan (1985), there were three basic needs for the students to be actively involved in the teaching-learning process. They were autonomy, competence, and relatedness.

Data Analysis

Thematic analysis patterns were used for analyzing the data. The patterns consist of identifying, analyzing, and reporting repeated patterns (Braun & Clarke, 2006). Data were segmented into two categories for the analyses: questionnaire and interview data. Each of the categories was divided into three leading indicators following the Self-determination theory (SDT) framework. They needed competence, a sense of belonging, and autonomy. The theme of each indicator emerged from the research data.

Results

This study explored how the lecturers motivate the students to engage in team-based online learning and how technologies in e-learning and remote classrooms motivate student engagement. Referring to Deci and Ryan's theory (1985), and based on the questionnaire and interview data, it can be seen that students' engagement in the team-based online learning model is based on three perspectives: competence, sense of belonging, and autonomy.

The Need for Competence

The focus of SDT is mainly on the will or self-determination behaviour and socio-cultural condition in doing something. The need for competence encourages someone to do something. Table 1 below shows how to rate students' engagement from a competence point of view.

Table 1. *The level of competence needs affecting students' engagement*

No	Indicator	Sub	Strongly Agree	agree	disagree	Strongly disagree
1	Need of Competence	Knowing how to achieve my goals	33.7%	65.3%	1%	0
		Knowing how to apply what I learn	17.8%	80.2%	2%	0
		Knowing Where to get help	23.8%	73.3%	2.9%	0
		Knowing how the systems here work	23.8	71.3%	4.9%	0
		Knowing how to access learning support service	21.8%	73.3%	4.9%	0
		Knowing how to use the library to support my learning	16.8%	67.3%	14.9%	1%

	Knowing how to help other students with their learning	12.9%	83.2%	3.9%	0
	Knowing how to draw attention to what needs changing	10.9%	81.2%	7.9%	0

Table 1 illustrated that the student's perception of the need for competence as the indicator of student engagement varied among 101 respondents. The questionnaire results showed that the needs of competence here dealt with knowing how to achieve the students' goals, knowing how to apply what the students learned, Knowing where to get help, Knowing how the systems here work, Knowing how to access learning support service, Knowing how to use the library to support my learning, Knowing how to help other students with their learning, and Knowing how to draw attention to what needs changing. From the data, it can be seen that 33.7% of the students strongly agree that they knew how to achieve their goals during the team-based online teaching-learning process, 65.3% agree, and 1% disagree. It means that most of the students were in neutral sites. In addition to that, dealing with the implementation of what the student knew, it denotes that only 17.8% of them strongly agreed that they knew what they learned during online team-based learning activities, 80.2% agreed that they knew what they learnt and 2% disagreed that they knew what they learned. Moreover, the need for competence was also signified by the student's understanding of finding further information or getting help. 23.8% of them strongly agreed that they knew where to get help in virtual learning during a pandemic, 73.3% agreed, and 2.9% disagreed. Besides that, another indicator of the need for competence is knowing how the system works. 23.8% of the students strongly agreed that they knew how the system of virtual learning worked during virtual learning, 71.3 agreed, and 4.9% disagreed that they knew the system of virtual learning.

The need for competence as the indicator of students' engagement was denoted by the student's understanding of how to access learning support services. Based on the questionnaire data, it was reported that 21.8% of students strongly agreed that they knew how to access learning support services during online learning, 73.3% agreed, and 4.9% did not agree. Therewithal, the student's comprehension of how to use the library to support their learning also contributed to improving the students' engagement. 16.8% of the students strongly agreed, 67.3% agreed, 14.9% disagreed, and 1% strongly disagreed on Knowing how to use the library to support the students' learning as the indicator of the need for competence. Besides that, based on data on how to help other students with their learning, it is reported that 12.9% of the students strongly agreed, 83.2% agreed, and 3.9% of the students did not agree that understanding how to help other students with their learning contributed to the student's engagement in virtual learning. The last indicator of the need for competence theme is Knowing how to draw attention to what needs changing. The results showed that 10.9% strongly agreed, 81.2% agreed, and 7.9% of the students disagreed that the Knowledge of how to draw attention to what needs as a part of competence indicators contributed to the students. Engagement.

The above data was supported by the students' interview data, which can be inferred from the following excerpts.

Table 2. *The Narration of students' need for competence*

No.	Indicator	A's excerpts	B's excerpts
1	Knowing how to achieve my goals	<i>A better understanding of learning activities. Do assignments on time Module I have received. Maximizing the PJJ implemented and adding references by seeking new Knowledge through webinars</i>	<i>Pay more attention to the material/subject matter of learning delivered by the , supervisors, and other students in the delivery of presentations. Pay attention to the assignments given by the lecturer and try to do it on time</i>
2	Knowing how to apply what I learn	<i>Diligently study material from various sources offline or online and then practising what I learned. More focus on learning Learning Writing, reading, and looking for a lot of relationships with other students Self-study</i>	<i>Participate in giving such training or webinars and learn from friends and YouTube about technology-based media and then apply them.</i>
3	Knowing where to get help	<i>Often, I read scientific articles and journals that support lectures and look for references in the library Self-study and looking for lots of references:.</i>	<i>Read more books or materials, whether online or offline.</i>
4	Knowing how the systems here work	<i>Participate in learning regularly and on time. Even though online or online, we will always try to be active in Communicating in every lesson, Participating in all learning activities, and being present in the learning network Divide study time to the maximumDiscipline in managing time</i>	<i>Present on time before Zoom started, always learning new things, especially in the IT field that will make us easier to join online learning.</i>
5	Knowing how to access learning support services	<i>Access Websites on Education provided by the Ministry; look for sources from YouTube or Another web Increase reading</i>	<i>Find out information and Knowledge through social media or friends around you. Be more active in learning because here we are required to be independent and maximize our</i>

		<i>and practice online</i>	<i>efforts. Participate in the provided training/internship.</i>
6	Knowing how to use the library to support my learning	<i>The usual way is to discuss with friends or search for information via the Internet or online libraries such as Perpustakaan.</i>	<i>Trying to apply learning to any situation, looking for interesting eLearning resources and reading more</i>
7	Knowing how to help other students with their learning	<i>Actively discuss in class and study in groups help each other and provide evaluations related to the learning carried out.</i>	<i>The usual way is to discuss with friends or search for information via the Internet. Providing information to friends so that they are interested in joining learning together</i>
8	Knowing how to draw attention to what needs changing	<i>Always studying modules Trying to stay fit in the learning process Takepartin competitions</i>	<i>Maximizing the PJJ implemented and adding references by seeking new Knowledge through webinars</i>

Based on the above statement, it can be inferred that there is some way the students did to achieve their goals. Some of them are by paying good attention to the materials and also the assignments given to the students.

Sense of Belonging

Since online learning has been adopted by many higher institutions as a way to deliver instruction during the pandemic, students' engagement has become a central issue that needs to be revealed. Sense of belonging as an indicator of the student's engagement was proved by the research data. Students' sense of belonging flashed from the following components. Those are feeling accepted by teachers, feeling comfortable with other students, feeling I belong here, feeling I am valued as a person, feeling accepted by other students, wanting to meet teachers' expectations, wanting to learn alongside other students, and joining in social occasions.

Based on 101 questionnaire data, it was revealed that 19.8% of the students strongly Agreed that they felt accepted by teachers, 76.2% agreed, and 4% disagreed. Additionally, students feeling comfortable with other students was also another indicator of a sense of belonging. 27.7% of the students strongly agreed that they felt comfortable with other students when joining online classes, 70.3% agreed, and 2% disagreed that they felt comfortable. Feeling that I belonged there is also an indicator of a sense of belonging. 13.9% of the students strongly agreed, 76.2% agreed, 8.9% disagreed, and 1% strongly disagreed. For Feeling I am valued as a person's indicator, 19.8% of the students strongly agreed, 78.2% agreed, and 2% disagreed. *Feeling accepted by other students'* indicators, 18.8% strongly agreed, and 81.2% agreed. *Wanting to meet teachers' expectations* indicator, 41% of the students strongly agreed, 57% agreed, and 2% disagreed.

The next indicator of a sense of belonging is Wanting to learn alongside other students. Based on questionnaire data, 40.6% of the students strongly agreed, and 59.4% agreed. For the *Joining in Social occasions* indicator, it was revealed that 21.8% of the students strongly

agreed, 69.3% agreed, 7.9% disagreed, and 1% strongly disagreed. The above data can be best summarized in Table 3 below.

Table 3 *The level of sense of belonging affecting students. engagement*

No	Indicator	Sub	Strongly Agree	agree	disagree	Strongly disagree
2	Sense of Belonging	Feeling accepted by teachers	19.8%	76.2%	4%	0
		Feeling comfortable with other students	27.7%	70.3%	2%	0
		Feeling I belong here	13.9%	76.2%	8.9%	1%
		Feeling I am valued as a person	19.8%	78.2%	2%	0
		Feeling accepted by other students	18.8%	81.2%	0	0
		Wanting to meet teachers' expectations	41%	57%	2%	0
		Wanting to learn alongside other students	40.6%	59.4%	0	0
		Joining in social occasions	21.8%	69.3%	7.9%	1%

Aligned with the above data, the interview data denoted that feeling a sense of belonging, such as feeling accepted by others and feeling comfortable, motivated the students to actively engage in the teaching-learning process. This above data was supported by the students' interview data that can be inferred from the following excerpts.

Table 4. *The Narration of students' sense of belonging*

No.	Indicator	A's excerpts	B's excerpts
1	Feeling accepted by teachers	<i>If we are diligent when attending lectures, even though it is carried out online, the lecturers will assess our performance during lectures</i>	<i>In lectures, even though it is carried out online, the lecturer assesses our performance by noting the activities of the students in classroom discussions</i>

2	Feeling comfortable with other students	<i>My college friends are very good. They want to help each other when we have difficulties</i>	<i>Discussions and collaborating with friends during online learning are things that make me happy</i>
3	Feeling I belong here	<i>I will cooperate with all campus residents and maintain cohesiveness within the campus and society so that the vision and mission of the institution are achieved properly</i>	<i>Maintain a good name for the institution and participate in a series of events held. Learn seriously. Maintain The good name of the institution where I study Gives suggestions and criticisms in a policy</i>
4	Feeling I am valued as a person	<i>At my campus, I can freely participate in some programs and competitions and behave well, both on campus and in society.</i>	<i>At this campus of many students with different backgrounds, we are not discriminated against</i>
5	Feeling accepted by other students	<i>Learning with the help of technology during this pandemic has made me creative, and with technology now, discussions and group work can still be carried out safely and comfortably</i>	<i>Discuss or coordinate with lecturers and friends about things that I don't understand during online learning</i>
6	Wanting to meet teachers' expectations	<i>Take online lectures, do assignments and quizzes, and discuss with friends and lecturers via Whatsapp Group, Zoom, g Meet, etc. Look for other sources of information besides books and materials from lecturers</i>	<i>Participate in regular online meetings as scheduled, active in e-learning. Asking when learning, doing assignments, Maximize time Always asking</i>
7	Wanting to learn alongside other students	<i>In online learning, the help of friends through discussion and group work really helped me</i>	<i>Take an active role and learn, help friends who are having a hard time, and more Take part in every activity that is held sincerely in order to get a satisfactory score</i>
8	Joining in social occasions	<i>Join the sharing guru. Share Knowledge with friends. Sharing parenting with parents Join the love of reading movement by donating books to schools</i>	<i>Active in the lecture process, likes to socialize, and helps students who do not understand how to learn online systems.</i>

Autonomy

Active engagement in learning during a pandemic requires students to do many things that require responsibility for their own learning, having clear goals, finding students' own

resources to help them learn, making social contacts with other students, setting a high standard for myself, talking to students with views different from students, questioning teachers about their teaching, and taking a leadership role in student affairs. The following are questionnaire results from 101 respondents.

Table 5. *The level of autonomy affecting students. engagement*

No	Indicator	Sub indicator	Strongly Agree	agree	disagree	Strongly disagree
3	Autonomy	Taking responsibility for my learning	14%	75%	11%	0%
		Having clear goal	14%	75%	11%	0%
		Finding my own resources to help me learn	14%	75%	11%	0%
		Making social contacts with other students	28.3%	71.7 %	0%	0%
		Setting high standard for myself	15%	74%	11%	0%
		Talking to students with views different from my own	10%	75%	15%	0%
		Questioning teachers about their teaching	19%	78%	3%	0
		Taking a leadership role in student affairs	7.1%	65.3 %	26.5%	1.1%

The above respondent data of questionnaires data was supported by the students' interview data that can be inferred from the following excerpts.

Table 6. *The Narration of students' Autonomy*

No.	Indicator	A's excerpts	B's excerpts
1	Taking responsibility for my learning	<i>Always respond to the information received in the group of lecture subjects. Always be present and follow the website well. Update the sites that have been provided to see the material and work on the questions Implementing Learning while Implementing Health Protocols. Sharing with friends regarding things that need to be discussed both in terms of lectures, street vendors and in terms of thesis research. When in the discussion forum, I will ask for answers or respond to the discussion material</i>	<i>Manage time well, learn and do what you love. Learn and manage your time well so you don't mess up Join community organizations outside campus, participate in helping junior high school students, and creating public speaking content.</i>
2	Having clear goals	<i>As much as possible, I listen and try to understand every material in class, ongoing presentations, responsive to the lecturer's questions, and active in group assignments. Understanding the material</i>	<i>Try harder to understand the lecture material because, during the hybrid, there is a lot of confusion.</i>
3	Finding my own resources to help me learn	<i>Independent learning, increasing experience both at work, in organizations, and in other social activities, sharpening soft skills and increasing self-potential Read more books or materials</i>	<i>Learning through videos and browsing the Internet Self-study</i>
4	Making social contact with other students	<i>When in the discussion forum, I will ask answers or respond to the discussion material</i>	<i>In my opinion, the existence of cell phones as a communication tool during online learning is vital because all information and communication are via cellphones</i>

5	Setting a high standard for myself	<i>Participate in discussions during learning and present the material well through Online follow group, work independently or in groups</i>	<i>Diligently study material from various sources offline and online</i>
6	Talking to students with views different from my own	<i>Follow the learning method provided Always express Opinions in discussions.</i>	<i>online learning during the pandemic and with the help of various technology applications, allows us to share and work together with other friends</i>
7	Questioning teachers about their teaching	<i>Ask the lecturer /teacher to Actively discuss in class and provide evaluations related to the learning carried out.</i>	<i>Active in participating in online learning sessions Diligently ask the lecturers and argue when learning takes place, and prepare the material carefully before learning begins</i>
8	Taking a leadership role in student affairs	<i>We play a role in an organization; the organization becomes a laboratory for the practice of state administration. That way, to implement and hone the knowledge that I get from various student and youth organizations I participate in.</i>	<i>Manage time well, learn and do what you love. Learn and manage your time well so you don't mess up Join community organizations outside campus, participate in helping junior high school students, and create public speaking content.</i>

Discussion

The focus of this research relates to the exploration of how lecturers motivate students to engage in team-based online learning and how technology influences student engagement in e-learning and remote classrooms. To analyze the data, this study uses the theory of Deci and Ryan (1985) which identifies three main perspectives that drive student engagement: competence, sense of belonging, and autonomy.

Competence:

Data shows that student engagement in team-based online learning is closely related to their perceived competence. This involves understanding how to achieve goals, applying learned knowledge, accessing learning support services, and navigating virtual learning systems. Questionnaire responses and interview excerpts explain the different levels of perceptions of competency among students. Although most agree on their competence, there are some differences. This suggests that some students may still struggle with certain aspects of virtual learning.

A sense of belonging:

This study highlights that a sense of belonging greatly influences student engagement. These feelings stem from factors such as feelings of being accepted by teachers and peers, comfort in the learning environment, and self-perceptions of being valued. The quantitative data presented illustrates the distribution of student responses to these indicators. The qualitative insights from the interviews reinforce the importance of these aspects in driving engagement. Feelings of acceptance and comfort create an environment conducive to active participation.

Autonomy:

Autonomy is emerging as an important factor in engaging students in online learning environments. The ability to take responsibility for learning, set clear goals, draw on personal resources, and interact with multiple perspectives plays a role in driving engagement. The survey data, as well as interview excerpts, highlight students' efforts to manage their learning journey independently. This autonomy empowers students to actively contribute and take on leadership roles, fostering a sense of ownership of their education.

When considering Deci and Ryan's theory, the results of this study are in line with the theory's emphasis on intrinsic motivation, self-determination, and psychological needs. Competence, a sense of belonging, and autonomy are interrelated aspects that contribute to the fulfilment of these psychological needs. Students who consider themselves competent, accepted, and empowered are more likely to be actively involved in their learning process.

These findings have practical implications for educators and institutions aiming to increase student engagement in online learning environments. Recognizing the importance of competency, educators must ensure clear communication regarding learning objectives and provide resources to address student knowledge gaps. Cultivating a sense of belonging involves creating a supportive and inclusive virtual classroom environment. Promoting autonomy requires a balanced approach. Educators should encourage independent learning while offering guidance and support when needed. Implementing peer interaction and group discussion can facilitate the sharing of diverse perspectives, strengthening students' sense of autonomy and engagement.

The above research supports Rovai, AP's (2003) research in search of Higher Persistence rates in distance education online programs. Rovai's research explores the factors that influence persistence in online education, including student engagement. This complements your focus on engagement in online and distance learning contexts. In addition, Reeve's (2006) research on "Teachers as facilitators: What autonomy-supportive teachers do and why their students benefit" focuses on teaching practices that support autonomy, showing that students perform better and are more involved when educators encourage autonomy in their learning processes. This supports the emphasis on autonomy as a driver of student engagement.

In conclusion, this study highlights the multidimensional nature of student engagement in team-based online learning. By considering the interplay between competence, belonging, and autonomy, educators can design more effective online learning experiences that meet students' intrinsic motivation and psychological needs.

Conclusion

This study was conducted to explore how the lecturers motivate the students to engage in team-based online learning and how technologies in e-learning and remote classrooms motivate student engagement. It shows that seeing from the Self-determination theory

framework, it is known that students' involvement in team-based online learning is influenced by their perceptions of competence. This includes knowing how to achieve their goals, applying what they have learned, accessing learning support services, understanding how systems work, and using the library to support their learning. The majority of students agreed or strongly agreed that they had these competencies, indicating a positive impact on their engagement. In addition, another important factor influencing student engagement is a sense of belonging. Students who feel accepted by the teacher, comfortable with other students, and valued as individuals show higher levels of engagement. In addition, students who want to live up to teacher expectations, learn with their peers, and participate in social events show a stronger sense of belonging and involvement. In addition to the two factors above, student autonomy is also an important element in promoting engagement. Students who take responsibility for their own learning, set clear goals, find their own resources, make social contacts, set high standards for themselves, engage in discussions with multiple perspectives, ask questions of teachers, and take leadership roles indicate a high level of involvement. Higher.

Overall, the findings indicate that students' engagement in team-based online learning is influenced by their needs for competence, belonging, and autonomy. These factors contribute to students' motivation and willingness to participate actively in the learning process. By encouraging these aspects, educators can increase student engagement and promote effective online learning experiences by applying instructional designs and using technology that can motivate student activity in the learning and teaching process.

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