In-Person Versus Online Learning About Students' Perception

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ABSTRACT

This paper investigates the importance of in-person learning to students' full perception of the teaching materials. The study hypothesized that in-person learning will facilitate perception of the content more than online learning. Moreover, it will ensure better interaction between the instructors and their students. Hence, the researcher distributed a survey among 65 female students to prove or disprove her hypothesis. The researcher analyzed the students data using Google surveys analytics. The findings of the students' survey analysis indicate that 52.6% of the students prefer in-person learning over online learning, and 41% of the students agree that some teaching activities could fit only in in-person learning. Accordingly, the researcher recommended that: firstly, institutes should encourage in-person learning over online learning because it ensures more quality of learning. Secondly, teachers should create a more natural environment by exploiting all teaching strategies that could fit only in in-person learning. Finally, students should make use of face-to-face interaction and develop better communication opportunities with their instructors and their peers by creating study groups for instance. And by sharing in the classroom discussions and seminars.

Keywords: in-person learning, online learning, students' perception

INTRODUCTION

In-person learning is a type of learning given to the students inside an educational institution such as a university, a school or a training institution. It includes a direct interaction between the instructors and their learners. All the instructors who adopt in-person learning will use the board and the marker or chalk as the main tools for explaining the content. Others will add flashcards, maps, and charts for more clarification. Others may use smart boards or projectors. The instructors also will have an opportunity to divide their students into groups and pairs depending on their levels which will create more chances of interactions and follow-up. One of the most important advantages of in-person learning is that the teacher can ensure that all the students are following the lesson and all of them have opportunities to interact equally. Moreover, in-person learning will give better feedback about students writing, reading, listening and speaking of the language. However, there are some contexts where online learning shows positive results. For example, older students or those with specific learning needs may benefit more from the flexibility that online courses offer. A meta-analysis found that students who engaged in hybrid learning (a combination of online and in-person instruction) often performed similarly to those in entirely in-person courses.

Some institutions also may prefer to adopt online learning, especially in extraordinary situations such as pandemics or in case of natural disasters such as floods or hurricanes. It is a good choice also in case of wars. Online learning is a good choice also in training institutions where the trainee could benefit from a foreign expert to learn a foreign language distantly for instance.

Several studies indicate no significant difference in learning outcomes between online and traditional in-

person classes. For instance, a review found that most research did not show substantial differences in academic performance between the two modes (Cavanaugh & Jacquemin, 2015; Kemp & Grieve, 2014) However, students with lower academic readiness or from underrepresented settings tend to underachieve in fully online contexts.

Other research highlights that online learning can lead to higher attrition rates. Students in online courses often experience a 10-20% increase in dropout rates compared to their peers in traditional classroomsettings. (Protopsaltis & Baum, 2019) The lack of immediate feedback and reduced social interaction are significant factors contributing to this issue.

Significance of the Study

The study is significant in many ways: firstly, it sheds light on the importance of personal learning over online learning which makes it different from most of the studies that compare in-person versus online learning or attract attention to the importance of online learning over in-person learning. Secondly, it will provide the teachers feedback about the importance of incorporating teaching techniques that couldn't be applied in online learning. Thirdly, it could be a good reference for the researchers who are interested in the same field of study. Finally, it will give the institutions feedback about the type of learning that the students prefer.

Research Objectives

The study aims to:

1. Identifying the importance of in-person learning.
2. Investigating student's reaction towards online learning
3. Shedding the light on the teaching materials that could fit only in in-person learning.

Research Hypothesis

1. In-person learning is crucial in the process of intake and input.
2. Students prefer in-person learning over online learning.
3. Some teaching activities fit only in in-person learning.

LITERATURE REVIEW

Over the past ten years, many researchers have conducted comparisons of student academic achievement in online and in-person environments (e.g., Bettinger et al., 2017; Fischer et al., 2020; Iglesias-Pradas et al., 2021). This section offers a brief review of the contrast in academic performance between college learners involved in in-person and online learning, as identified in existing study.

Many studies marked the prevalence of traditional in-person learning over online learning in terms of academic outcomes. For instance, Fischer et al. (2020) made a thorough study including 72,000 university students across 433 subjects, showing that online learners tend to perform slightly lower academic outcomes than their in-class colleagues. identically, Bettinger et al. (2017) found that learners at for-profit online universities generally underachieved in comparison to their in-person peers., Figlio et al. (2013) also Support this trend and clarified that in-person teaching continuously achieved better outcomes, especially between certain subgroups like males, underachieving students, and Hispanic learners. Moreover, Kaupp's (2012) research in California community colleges showed that online students faced less completion and success grades compared to their traditional in-person colleagues (Fig. 1).

Fig. 1: Comparison of Final Exam Outcomes for the Five Courses Mandatory Beginners' Courses in King Saud University by Year (2020 and 2021).
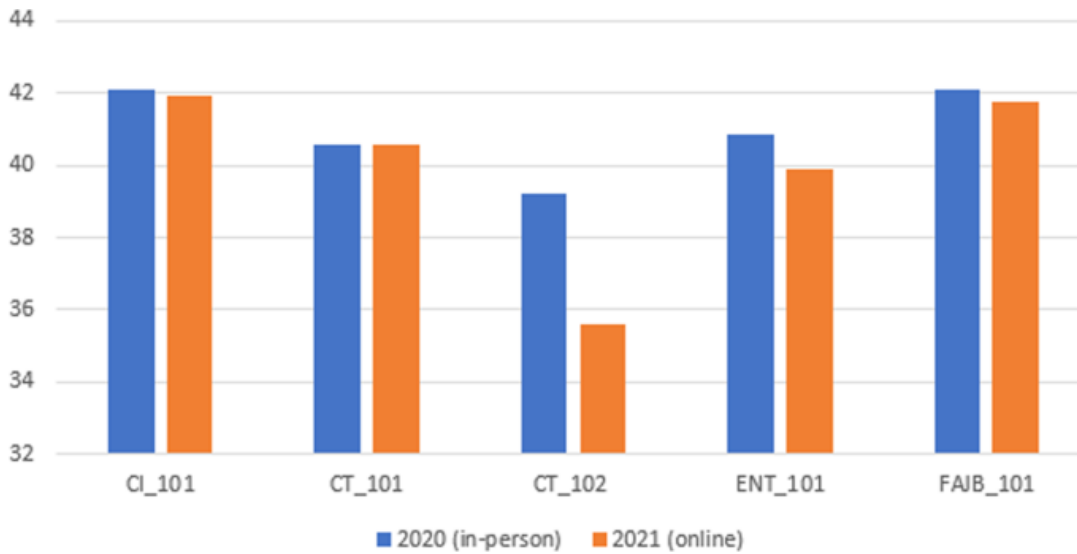
The Chart compared student performance in the final tests in the five courses by year, using independent-sample t-tests; the results offer a statistically significant falling in test scores from 2020 (in person) to 2021 (online) for all courses except CT_101

On the other hand, other researches offer evidence of online learners outmatch their in-person peers. For instance, Iglesias-Pradas et al. (2021) made a comparative analysis of 43 bachelor courses at Telecommunication Engineering College in Malaysia, showing that online learners accomplished higher academic outcomes than their in-person peers. equivalently, during the COVID-19 pandemic, Gonzalez et al. (2020) found that students involved in online learning accomplish better than those who had previously taken the same courses in traditional in-class environments.

extending on this topic, several papers have reported mixed outcomes when comparing the academic achievement of online and in-person students, with different student and instructor elements emerging as effective variables. Chesser et al. (2020) reported that student features such as conscientiousness, agreeableness, and extraversion play important role in academic accomplishment, regardless of the learning contexts be it traditional in-person classrooms or online environments. Additionally, Cacault et al. (2021) found out that online learners with more academic competence tend to outmatch those with less academic skills, proposing that differences in students' academic skills may affect their achievement. On contrary, Bergstrand and Savage (2013) found that online classes acquired lower total assessments and displays a less considerate learning setting when compared to in-person teaching. however, they also noticed that the teaching effectiveness of both in-class and online courses differ greatly based on the instructors' backgrounds and methodologies. These results underlie the varied nature of the online vs. in-person learning discussion, stressing the need for an exact perception of the usable items.

Theoretical Framework

Constructivism is a firmly set learning theory that puts learners at the front line of their educational proficiency, stressing their important role in building knowledge through interactions with their learning contexts (Duffy and Jonassen, 2009). In accordance with constructivist principles, learners construct their comprehension by integrating new information into their existing cognitive frameworks (Vygotsky, 1978). This theory emphasizes the significance of learning context, active involvement, and the communal type of learning (Dewey, 1938). Constructivist methods usually involve hands-on activities, problem-solving tasks,

and chances for collaborative discovery (Brooks and Brooks, 1999).

Within the domain education, subject-specific pedagogy appears as a significant aspect that accepts the typical nature of varied academic approaches (Shulman, 1986). It proposes that teaching methods should be tailored to the specific characteristics of each subject, recognizing that courses like mathematics, literature, or science need varied methods of teaching to promote effective learning (Shulman, 1987). course-specific pedagogy highlights that the approaches of instruction should reflect the ways experts in a certain field think, reason, and involve with their topic (Cochran-Smith and Zeichner, 2005).

When using these theories to the context of instruction for online and in-person learning environments, the importance of adjusting approaches becomes more noticeable. Online learning often needs peculiar methods due to its dependence on technology, non-contemporary interactions, and probable for reduced social potentiality (Anderson, 2003). In-person learning face-to-face interactions and immediate feedback, are on the other hand an advantage. (Allen and Seaman, 2016). Here, the connection of constructivism and subject-specific pedagogy becomes apparent.

Online Learning.

In an online environment, constructivist standards can be supported by making interactive online activities that encourages investigation, reflection, and collaborative learning (Salmon, 2000). Discussion forums, virtual labs, and multimedia presentations can provide chances for students to actively involved with the content (Harasim, 2017). By incorporating subject-specific teaching, educators can plan online content that reflects the discipline's approaches while exploiting technology for real experiences (Koehler and Mishra, 2009). For example, an online history course might integrate virtual museum tours, primary source analysis, and collaborative timeline projects. All these need a teacher who is an expert and trained to change the artificial virtual context into a natural context.

In-person learning. In an old physical classroom environment, constructivist methods can be applied through group activities, problem-solving tasks, and detailed discussions that inspire active involvement (Jonassen et al., 2003). Subject-specific pedagogy correlate this by shaping instructional approaches to go along with the integral features of the content (Hattie, 2009). For example, in a physics class, hands-on experiments and real-world applications can lead to theoretical concepts to life (Hake, 1998).

To conclude, the mixture of constructivism and subject-specific pedagogy introduces an adaptable approach to instructional design that adjust to varied learning contexts. (Garrison, 2011). By integrating the rules of both theories, educators can design their approaches to suit the remarkable requirements of online and in-person learning, eventually presenting learners with engaging and effective learning proficiencies that agree with the nature of the content and the type of instruction.

Online learning definition

According to Mayadas, Miller, and Sener (2015), online courses are defined as all course tasks occurs online with no conditioned in-person classes or on-campus tasks. Although, the Babson Survey Research Group, a prominent organization famous for its surveys and research in online learning, defines online learning as a course in which 80-100% takes place online. While this comparision was made to offer consistency in surveys year over year, most organizations continue to define online learning as learning that happens 100% online.

**In-person learning definition**

It could be defined as a type of learning that requires face-to-face interactions between the instructor and the

learners. In-person learning. Constructivist approaches can be achieved through group activities, problem-solving tasks, and detailed discussions that inspire active engagement (Jonassen et al., 2003). Subject-specific pedagogy achieves this by designing instructional approaches to agree with the essential features of the content (Hattie, 2009). For example, in a physics class, hands-on experiments and real-world applications can offer theoretical definitions to life (Hake, 1998).
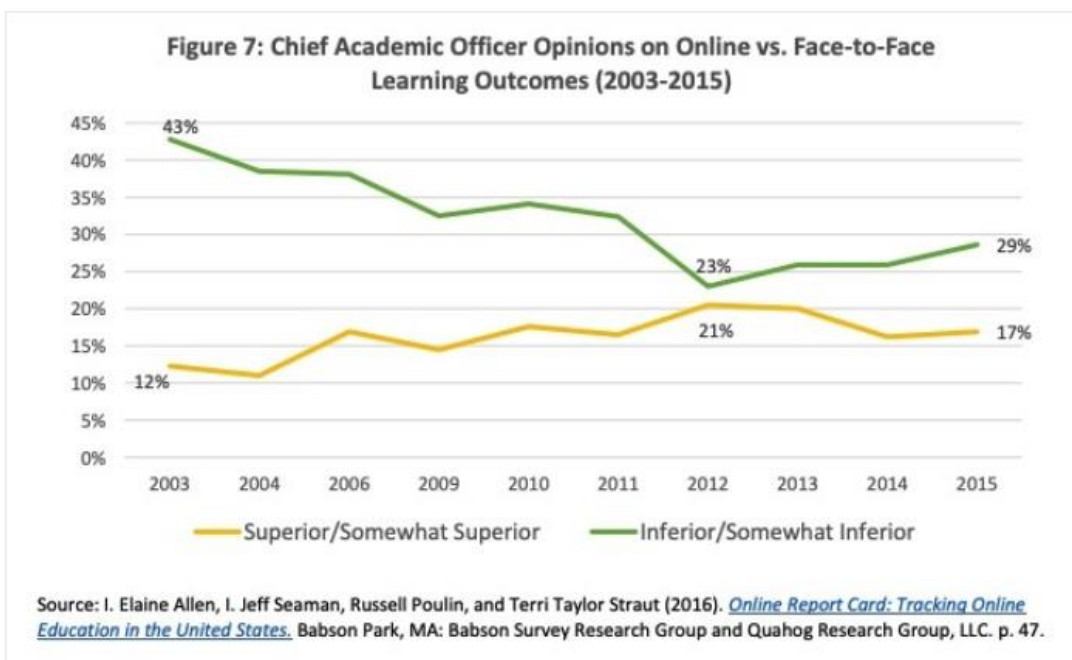
Perceptions of online education

Although online learning is more prevalent today, it is often seen as less favorable in comparison to a more traditional, in-person educational context. districts like employer groups, college faculty, and the general public, and include lack of perceived quality, as well as rigour, faulted online education (Protopsaltis & Baum, 2019).

In a 2016 report by the Babson Survey Research Group, surveys of faculty between 2002 to 2015 reported approval ratings regarding the value and legality of online education started from 28-to 34%. While numbers have raised and reduced over the thirteen-year time frame, faculty approval was at 29% in 2015, just one percent higher than the approval ratings reported in 2002 – clarifying that understandings have remained relatively fixed over the years (Allen, Seaman, Poulin, & Straut, 2016).
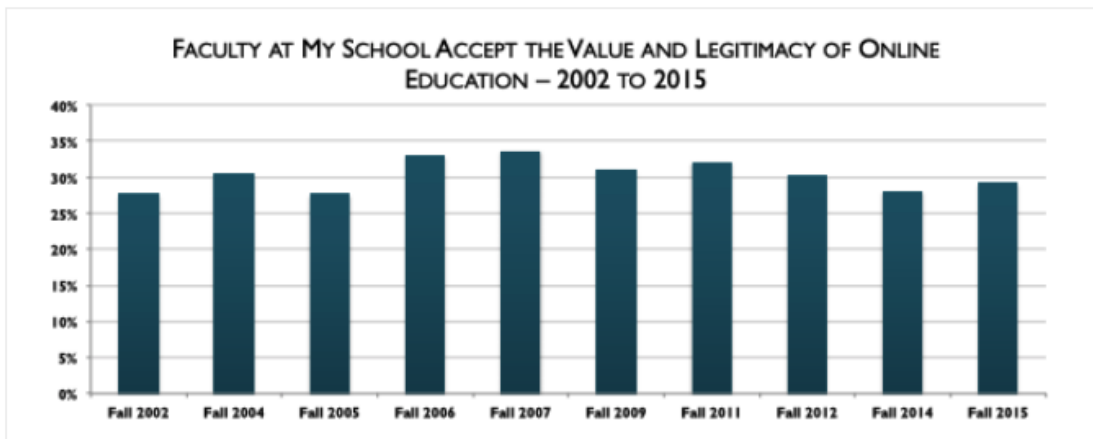
(Allen, I.E., Seaman, J., Poulin, R., Taylor Strout, T., 2016, p. 26)

Chief academic officers survey is another example that clarifies perceptions of online learning appeared to agree with that of faculty. In this survey, leaders were asked to assess their noticed quality of learning results in online learning when compared to traditional in-person contexts. While the percentage of leaders assessment online learning as "inferior" or "somewhat inferior" to traditional face-to-face courses decreaced from 43% to 23% between 2003 to 2012, the number increased again to 29% in 2015 (Allen, Seaman, Poulin, & Straut, 2016).

Faculty and academic leaders in higher education are not the only members when it comes to conceptions of inferiority when compared to traditional classroom instruction. A 2013 Gallop poll rating public understanding showed that respondents assess online education as "worse" in five of the seven categories seen in the table below.

Americans' Views of Online Education vs. Traditional Classroom-Based Education

	Online better	The same	Online worse	Net better
	%	%	%	
Providing a wide range of options for curriculum	33	39	23	+10
Providing good value for the money	33	34	27	+6
Providing a format most students can succeed in	23	42	30	-7
Providing instruction tailored to each individual	23	31	41	-18
Providing high-quality instruction from well-qualified instructors	15	37	43	-28
Providing rigorous testing and grading that can be trusted	11	39	45	-34
Providing a degree that will be viewed positively by employers	13	33	49	-36

Oct. 5-6, 2013

GALLUP

(Saad, L., Busteed, B., and Ogisi, M., 2013, October 15)

Generally, Americans consider that online education offers both lower quality and less unique instruction and less accurate testing and grading in comparison with the traditional classroom environment. additionally, respondents also thought that employers would identify a degree from an online program less positively when compared to a degree gained through traditional classroom education (Saad, Busteed, & Ogisi, 2013).

While most studies reviewed found no significant difference in learning findings when comparing online to traditional courses (Cavanaugh & Jacquemin, 2015; Kemp & Grieve, 2014; Lyke & Frank 2012; Nichols, Shaffer, & Shockey, 2003; Stack, 2015; Summers, Waigandt, & Whittaker, 2005), there were a few outliers. In a 2019 report by Protopsaltis & Baum, authors assured that while learning is often found to be similar

between the two mediums, learners "with low academic readiness and those from low-income and marginalized backgrounds consistently underachieve in fully-online settings" (Protopsaltis & Baum, 2019, n.p.). on the other hand, there were a small number of studies that reported that online students tend to outmatch those enrolled in traditional classroom instruction. Particularly, one study found a significant difference in test grades for learners joined an online, undergraduate business course. The confusing variable, in this study, was age. studies found a significant difference in achievement in nontraditional-age learners over their traditional-age colleagues. researchers concluded that older students may select to take online classes for practical reasons related to outside work schedules, and this may, in turn, contribute to the learning that takes place generally (Slover & Mandernach, 2018).

In a meta-analysis and review of online learning counting the years 1996 to 2008, authors from the US Department of Education reported that students who attended all or part of their classes online showed better learning results than those students who attended the same courses in-person. In these cases, it is important to note that there were many variations between the online and in-person versions, including the amount of time students spent involved with course content. The researchers concluded that the variations in learning findings may be refer to learning design in contrast to the specific mode of instruction (Means, Toyoma, Murphy, Bakia, Jones, 2009).

Research Design

The descriptive quantitative research design is used in this study to collect and analyze data. The researcher asked her students to answer survey questions that were designed mainly to measure their perspectives on online and in-person learning. The survey questions is divided into three main parts: part one check students' perception about the importance of online learning. Part checks their perception of the importance of in-person learning and the last part checks the students' preference.

Participants

The population of the study was EFL female students in Saudi Universities who are studying English. The sample of this population was taken from Shaqraa University. The survey is distributed to EFL female students of Shaqraa University. The survey was distributed online to about 200 students who specialized in English from level one to level eight. The number of participants who responded to the questionnaire was 65 students who specialized in English language and literature in Shaqra University, College of Science and Humanities, at Dawadmi City in 2024. So, the researcher selected her sample randomly by distributing the questionnaire to the students online at (MY U application). 65 out of 200 students respond to the questionnaire.

Tools of Data Collection

Students targeted (65) group of different levels who are studying English language and literature at Shaqraa University are asked to fill in a survey comparing online versus in-person learning. The survey included some questions to measure their competence about the importance of online and in-person learning, teaching strategies that could fit only in in-person learning, and one question that was opened to measure students' preferences.

DISCUSSION

The researcher will divide her discussions into three types: firstly responses to the questions about the importance of online learning, responses to the questions about in-person learning and Responses to a question about students' preferences. And she will discuss those responses about her study hypothesis.

1. Responses to the questions about the importance of online learning.

online learning gives me better understanding to the content than in person learning
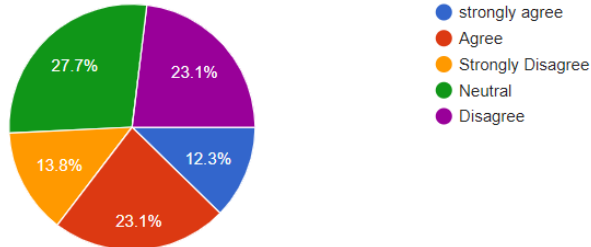
From the above chart, it is clear that about 12% and 23% of the students strongly agree and agree respectively that online learning facilitates understanding of the content. On the other hand, 13.8% and 23% of the sample strongly disagree and disagree respectively. That means the number of students who see that in-person learning facilitates understanding of the content is more than those who see the vice versa. This will support the study's first hypothesis of the study which states that "in-person learning is crucial in the process of intake and input".

online learning incorporate better technology than in person learning
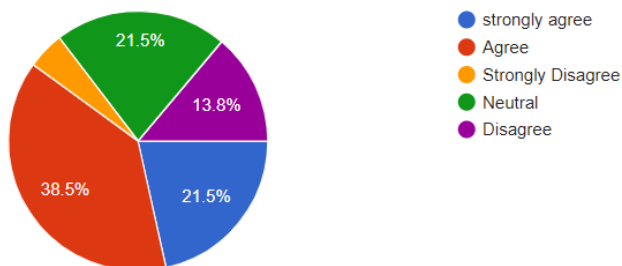
As clear from the chart above 21.5% and 38.5% of the participants agreed strongly and agreed respectively that the technology used in online learning is better than the one used in in-person learning. But 13.8% of them disagreed.

online learning ensures more interaction between the teachers and their studtents than inperson learning
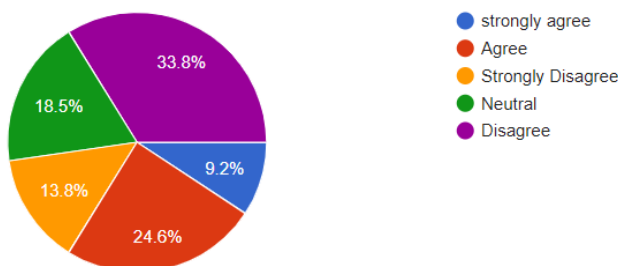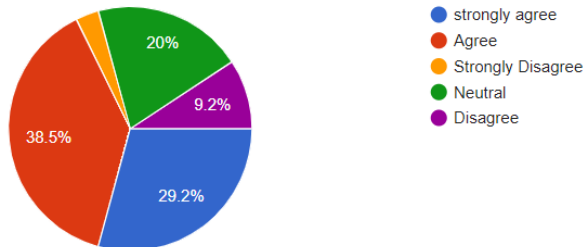
As for the interaction between the instructor and the learners about 14% and 34% of the students strongly

disagree and disagree respectively that online learning ensures more interaction inside the classroom than in person learning. This answer will support the first hypothesis of the study that "in-person learning is crucial in the process of intake and input".
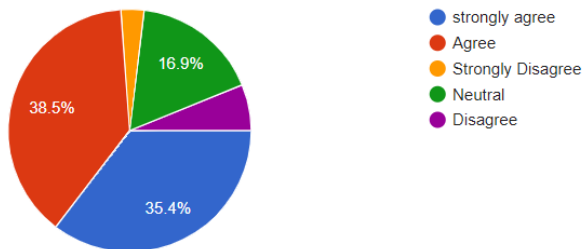

The above chart tells us about the cost of learning distantly. 29% of the students agreed strongly, 38.5% of them agreed, and only about 9% of the students disagreed that online learning costs less money than in person learning.

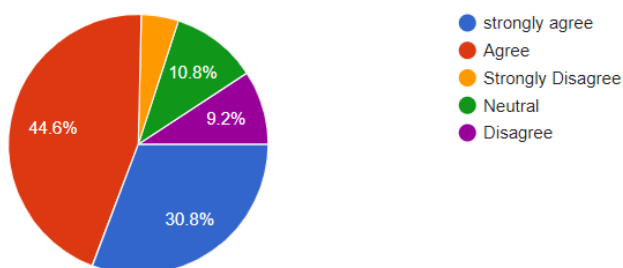One of the teaching strategies that could be adopted through learning online is recording the lecture and making it available for students. 35.4% of students and 38.5% of the students agreed that recording and availability of the lecture is one of the online learning advantages.
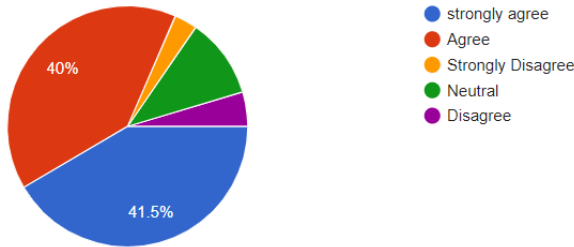

About 31% and 44.6% of the participants agreed strongly and agreed respectively that online learning allows them more free time.

2. Responses about the importance of in-person learning

in person learning allows more opportunities of interaction such as group work and pair work

65 ردًا

- strongly agree
- Agree
- Strongly Disagree
- Neutral
- Disagree

Some teaching strategies could fit only in the type of in-person learning such as group work and pair work. 41.5% of the students agreed strongly and 40% of them agreed that in person learning allows more activities of interaction such as group work and pair work. The responses to this question will prove the third study hypothesis that "there are some teaching strategies that fit only in in-person learning."

inperson learning gives me better feedback from my teacher than online learning

65 ردًا

- strongly agree
- Agree
- Strongly Disagree
- Neutral
- Disagree
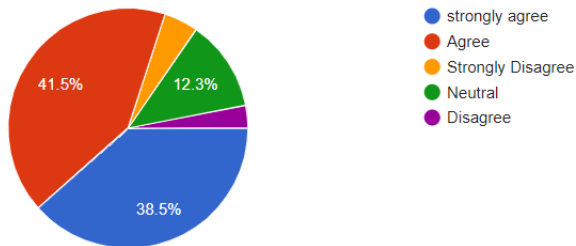
The feedback which the students receive from their teacher face to face will be much better and more understandable than giving feedback online. The teacher can understand through her eye contact whether students understand or not so she can repeat or ask some students that she doubts that they didn't understand or whether they need more help. A very good number of the students agreed strongly (38.5%) and agreed (41.5%) that the feedback they received personally was more effective than the ones they received distantly.

inperson learning creats more natural environment for learning than the virtual classrooms of online learning

65 ردًا

- strongly agree
- Agree
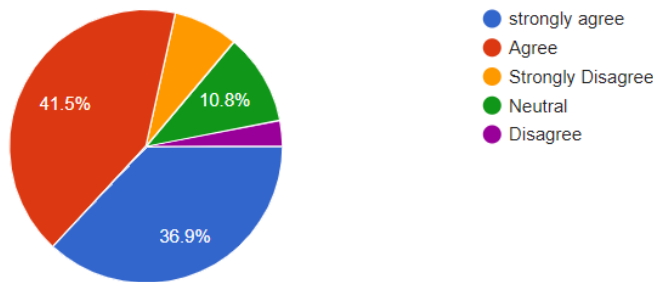- Strongly Disagree
- Neutral
- Disagree
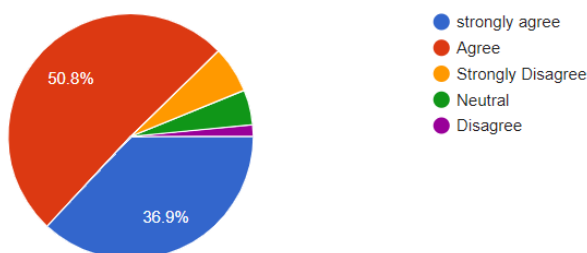
In the natural environment of learning the teacher should teach his/her students face to face because this will

give her feedback about the levels of his/her students and accordingly she will decide whether to go on her explanation or to stop and repeat certain points. Especially in learning the languages which will depend on the interaction between the speaker and the listeners. About 37% and 51% of the sample agreed strongly and agreed respectively on this point of view.

in person learning suits all the learning styles

اكبر 65

- strongly agree
- Agree
- Strongly Disagree
- Neutral
- Disagree

A good number of participants agreed strongly (about 37%) and agreed (about 41.5%) that in person learning suits all learning styles. Visual learners who prefer to see the teacher while explaining the lesson, see a lot of colors on the board or a PowerPoint projector slides in-person learning will suit them. Moreover, for the auditory learners who prefer to discuss inside the classroom with the teacher and the other colleagues, in person learning will suit them. However, the ones who will benefit more from face-to-face interaction are the kinesthetic learners. Because they are very shy to ask questions and show their misunderstanding. So it will be very difficult for the teacher to discover whether they understand the lesson or not distantly beyond the screen. But through in-person learning, she can discover students misunderstanding clearly and she can watch them using her eye contact. Moreover, some students who are learning online and are not interested in the lesson can just close their screens and microphones and take a good nap while the teacher is unconscious about that.

All these answers to part two questions of the survey will prove the first study hypothesis that states "in-person learning is crucial in the process of intake and input".

3. Response to a question about students' preferences as mentioned by the students in their responses to the survey https://forms.gle/w1NAhmku6aS7E8f8A

In person learning is better	Online learning is better	I prefer both
1. In-person learning gives me better feedback from my teacher than online learning	1. Online learning helps with a stronger understanding	1 Both online learning and in-person learning play crucial roles in education.
2. Students have more opportunities to receive what they truly deserve when they participate in in-person learning.	2. I think online is better sometimes it depends on the student's needs	2.I prefer both because each has its advantages
3. Sometimes there has to be face-to-face and this does not apply to online learning because it will be a very short period. But they are both useful. It's better to learn in two ways.	3. The benefit of online learning in my opinion is the easy way to get any information. Personal learning can be beneficial in my opinion if the person feels comfortable working alone and making his plans	3. Each one has its distinct feature

4. There are disadvantages of online classes such as Lack of face-to-face interaction, Difficulty staying motivated, Limited access to resources and support, and Technical difficulties. And also we don't getthe information.	4. From my own experience of two years of learning online the learning process in offline was much more useful and helpful you can listen toyour teacher carefully without gettingsleep and be more active and as aresult, you can do well in your exams. Iagree with the online courses in onecase if the student is in his last semesterand wants to add more subjects it isnecessary to take more courses onlineand offline to finish his studies. In theend, THANK U FOR READING	4. Online teachingfacilitates communicationbetween the student and thedoctor. In-person teachingfacilitates understanding ofthe lesson and the access of information to students.
5. Personal education contributes to achievement.	5. Online learning is flexible, low-cost, and diverse in resources.	5. All of them have a disadvantage and advantages. But I am certain that an educated person can adapt to all circumstances when he is determined to learn
6. In-person learning is more effective and creates more cooperative learning	6. Online education makes me more comfortable	6. Being a student, there is no doubt that this wonderful subject is important to me, and my opinion on this is that they both have pros and cons. In personalized learning, there is direct interaction, immediate guidance, and a structured environment.
7. Both kinds are good but Of course, in-person learning is better because there will be more interaction and communication, especially in teamwork and presentation. Finally, it depends on the students' personalities.		7. I think both online and in person learning are useful it just depends on the students and their way of understanding
8. Personal learning helps to focus more, on group participation. in my opinion, each of them has advantages that prefer them over each other		
9. By using online learning students will not feel like it's serious and will just join the online lecture as if it's a podcast instead of something important		
10. In-person learning is better for a clear understanding of the lectures		

11. From my point of view, teaching in person is much better than online because there will be communication and all types of visual and audio communication will be available, but online it can only be audio and I ama person who prefers in-personbecause body language, I believe,body language plays an importantrole in the explanation.		
12. Offline learning is far better than online learning sure both are great but offline learning gives more flexibility and opportunities for teachers and students, it'll make students feel more confident and engage with their peers and teachers rather than being alone in their bedroom just listening to what the teacher is teaching them with no interaction whatsoever. (From my personal experience).		
13. Distance education is great, but, I do not prefer it in our university over some lessons		
14. I prefer in-person learning but also I think we need online learning when we need it like for bad weather days or during Ramadan.		
15. In my opinion, I prefer personal learning to online learning because in person learning gives me more opportunities to communicate with teachers and with my classmates and the environment gives me more excitement and interaction		
16. In-person learning is more effective than online learning		
17. I feel more confident and free when I make eye contact with others, so I think in-person learning suits me better and gives me the freedom to discuss more things and be active.		
18. In-person learning Is Better		
19. I prefer in-person learning because I get involved and ask questions		

20.In general, I prefer personal teaching because it makes me feel that I understood the lesson well		

38 students out of 65 responded to the last open type question about which one you prefer online learning or in person learning and why.

13.3% of them were neutral. 52.6% prefer in person learning over online learning. Some of the reasons that let them choose in-person learning are that: it will give them more understanding of the content, it will let them feel more confident, it will let them be more involved and have better opportunities to ask questions, and it allows them more opportunities for interactions. And this percentage of responses proves the second study hypothesis that "students prefer in person learning over online learning".

15.7% of the participants prefer online learning over in person learning. Some of the reasons mentioned by them were: its flexibility, low cost, easiness of getting the information, and better understanding of the content.

18.4% of the sample prefer both of them because they both have advantages and disadvantages.

CONCLUSION

Online learning and in-person learning are the most common types of learning all over the world. However, the issue of which one to adopt in the process of teaching and learning is a controversial one. From the researcher's own experiences in online education and in-person instruction, she concluded that in-person teaching as well as learning is much better for both teachers and learners. It will give the teachers feedback whether the learners are following the lesson, and understanding it or not. The learners will receive immediate feedback from their teachers through learning in person. Moreover, in-person learning suits all learning styles ensures a better understanding of the content and ensures better interaction between the instructor and the learners, more activities could be adopted through in-person learning such as group work, pair work and face-to-face discussion. Also, it will create a more natural environment for learning the language and ensure better follow-up.

Online learning on the other hand will not ensure better follow-up and it will create a virtual environment for learning which will decrease the seriousness of learning, it will not ensure a better understanding of the content. Moreover, some technical problems will face the instructor and the teacher if the platform is very weak or if the internet connection is very weak too. Despite these disadvantages, online learning has some advantages: it will ensure some free time for the students, cost less money because the students will save the money to reach their institution, incorporate better technology through using the advantages of virtual classrooms, and recording the lesson and making it available to the students to listen to it at any time.

In this study, A majority of students like in-person learning for some reasons such as better understanding of the content, better interaction, better communication, and gives them more confidence. While only 15.7% of the sample prefer online learning over in-person learning. They have their reasons such as flexibility, low cost, easiness of getting the information, and a better understanding of the content.

18.4% of the sample prefer both of them because they both have advantages and disadvantages.

According to these findings, the researcher recommends that institutes should encourage in person learning over online learning because it ensures more quality of learning. Moreover, teachers should create a more natural environment by exploiting all teaching strategies that could fit only in in-person learning. Also, learners should make use of face-to-face interaction and develop better communication opportunities with

their instructors and their peers by making study groups for instance and through sharing in the classroom discussions and seminars.

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