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Exploring scientific writing as part of a learning model for interprofessional higher health education – A qualitative study

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ABSTRACT

This study investigated how students in interprofessional higher education experienced learning with a model including essay writing and perceived the effect on their learning outcomes. The study occurred at an institute with two interprofessional programs at a university in Norway. Students gained new knowledge or new understandings when their theoretical knowledge and clinical experiences intersected in essay form. Common themes were 1) *learning benefits and learning models*, 2) *benefits of interprofessional collaboration*, and 3) *Organisations, developments, and changes in writing processes* When participating in the study programme based on the developed learning model the students felt both their theoretical and practical knowledge and understanding were deepened. Essays gave students opportunities to formulate their own personal ideas, new understandings, new patterns of practice and deeper knowledge, particularly when writing in groups. Experience-based knowledge has been legitimated by the students who discovered the good interaction between theory and practice. We concluded that the model requires good virtual platforms for the groups to function optimally and that essay writing can give students in higher education the opportunity to formulate their ideas in a more personal way. The interprofessional collaboration, in essay writing, was perceived as both rewarding, challenging, but also a reflective learning process for the students.

1. Introduction

Workplace development undergoes rapid changes today, that in turn place increased demands on employee skills and competence (Jensen & Ottesen, 2022; Marin, 2022). The Norwegian government (2019) had the intension to create the conditions to improve skills and career development for workers in different arenas and professions in health services, for example, by developing higher education programs for health service workers (Ministry of Education and Research, 2019). The government wanted to build a bridge between the needs in society and the real competence that employees in fact have. Good interaction and collaboration between academia, research and the professions are necessary to ensure knowledge-based service performance (Vasset et al., 2021). In academia, education, research, and professional life should meet in such a way that there is potential for creating innovation and for to developing working life (Ministry of Education and Research, 2019). Government and universities need to pursue a partnership approach with stakeholders to ensure fit-for-purpose programs, policies, and the relevancy of purpose solutions. In the future there needs to be more

concerted efforts to design interventions, programs, resources and learning activities in higher education. Dollinger et al., (2022) consider that we need to redefine participants as experts of their own experiences. By repositioning participants as experts and co-research, we challenge traditional assumptions that students must be the ones to change. We must stop assuming what students need and instead modify the system to support authentic partnership (Dollinger et al., 2022). In 2019, a technology – intensive approach was developed and implemented in higher education at a university in Norway. Using scientific written methods, i.e., essays, (Friberg & Lyckhage, 2013; Bailay et al., 2015; Dahl et al., 2023; Lavelle et al., 2013; Tsai, 2015) and make the students both individually and in groups more active, i.e. to see the students as an expert in their field in higher education (Dollinger et al., 2022). Studie-centred learning is considering core in higher education for preparing lifelong learners. The method promotes students' critical thinking, their ability to reflection and deepen their competence as professional caregivers (Øvrum & Kapstad, 2021; Dollinger et al., 2022). Scientific essay writing has been recognized as a valuable tool for learning and assessment (Lavelle et al., 2013; Noroozi et al., 2023;

Haroa et al., 2023). Concepts such as writing, analysis, interpretation, reflection, and argumentation became important in modern or contemporary education. (Marin, 2022; Noroozi et al., 2023; Oseni et al., 2022). The ability to reflect is a success factor indicating high academic performance in writing and oral assessment tasks overall (Tsingos-Lucas et al., 2017; Noroozi et al., 2023). Shields (2010:10) highlights the three most common forms of academic writing: reports, essays, and dissertations. It is often the perspective from education that indicates the direction of pedagogical design. The purpose of this study is to investigate whether essay writing in interprofessional student groups can be used to learn both to collaborate interprofessional, but also to use this genre to develop writing skills.

2. Student active learning

There is no clear definition of Studie active learning (SAL), but a common agreement among researchers is that SAL the students assume autonomy and responsibility for their learning processes. Previously it was from the teacher that the student learns, but student-centred-learning is more unique because it is not teacher centred. Student centred learning focuses on the development of learner autonomy and independence by putting task for learning path in the hands of students, inculcating into them skills. A model was developed to respond to the demands of modern pedagogical models as they appeared in the literature in the 2020s (Øvrum & Kapstad, 2021; Oseni et al., 2022; Dollinger et al., 2022; Haroa et al., 2023; Marin, 2022; Noroozi et al., 2023). The study by Oseni et al. (2022) achieved its initial objectives of assessing the efficacy of student-centred learning strategies in the classroom. This study concluded that student-centred learning strategies can benefit nurse trainees therefore, resulting in an increase in knowledge and practice of nursing. These learning strategies were taken up, in Gadamer's hermeneutic philosophy. A prevailing pedagogical approach is what is called reverse teaching, or student-active methods. In short, it means that the traditional teaching model is turned upside down. Instructions and lectures are made available online, while time in the classroom is used for interactions with the teacher but also between students. Online supported feedback both from peers and teachers were effective, according to Noroozi et al. (2023). Appropriate teaching method, time constraints, and large class size were the most common problems that did not allow students to apply their argumentative essay writing skills questioning effectively (Vasset et al., 2019; Abeysekera & Dawson, 2015, Seyoum et el., 2022), in line with sociocultural theory.

2.1. Gadamer's hermeneutics

The theoretical model used a framework based on Gadamer's hermeneutics (Gadamer, 2016). Gadamer's approach identified pre-existing assumptions through confrontation with different beliefs, such as the opinions of other researchers, colleagues, or traditional text of philosophy. Gadamer maintained that one's own preunderstanding should be strengthened for development to be possible (Gadamer, 2016, p. 15). Strengthening preunderstanding takes place through reflection, analysis, interpretation, and argumentation both in groups and individually. An important process is to deal with what Gadamer (2016) calls prejudice. By question the subject matter, we can gain critical awareness of our prejudices and a deeper understanding of the subject (Du Plessis & McDonagh, 2021). When students' preunderstanding is challenged through reflection and argumentation in interprofessional groups, a new understanding arises when students encounter new research and theory. Outcomes of the process are revealed in an essay that the student writes either individually or in groups. Previous understanding is transformed into new interpretive patterns and models for practice. The hermeneutic process (Gadamer, 2016) will be revealed in scientific essays, which in turn will be the new horizon of interpretation.

2.2. Learning theory

Learning theory is an attempt to describe how human beings learn. Muhajirah (2020, pp. 38-40) highlights four main perspectives in learning theory: 1) the behaviouristic view of learning, 2) cognitivism, 3) constructivism and 4) humanism/socioculturalism.

The main message of sociocultural theory is that the individual's learning takes place everywhere and all the time, which makes learning a social phenomenon. The sociocultural approach acknowledges that learning takes place through community, interaction, and language, with tools or artefacts in a cultural and historical context (White, 2010, see also Marin, 2021).

2.3. Student-centred learning model in higher education

The challenge for academia is to find optimal pedagogical solutions for students. More research is required to identify models and pedagogical methods that are perceived as good for students and increase their learning (Harrington et al., 2015; Franklin & Harrington, 2019; Øvrum & Kapstad, 2021; Oseni et al., 2022). The scientific method is optimal for improving knowledge of the explanations with the best prediction skill, while preserving the ability to improve knowledge in the future.

A theoretical model was built; 2019s with the intention of safeguarding knowledge and experience based on interprofessional collaboration (Borglin, 2012; Abeysekera & Dawson, 2015). From traditional classroom teaching, we set up multiform studies (Raaheim & Nysveen, 2019) and included "scientific essays", as evaluations products of the process made possible by student-centred pedagogy. Scientific essays are a result of reflection and argumentation and can include syntheses of theory, research, and experience (Shield, 2010; Dahl et al., 2023; Noroozi et al., 2023; Haroa et al., 2023). The principle behind essay writing in academia is that reflection on texts will make students more able to move beyond their preconceptions to understand the target phenomenon and then exceed the horizon of knowledge (Dahl et al., 2023; Herder et al., 2018), i.e. a form of Gadamer's philosophy and get useful feedback from the teacher (Latifi et al., 2020, 2021). According to Segolsson (2011), Grensman (2019), and Gadamer (2016), new understanding will appear through the fusion of the horizons between the student's previous understanding and new knowledge. However, as the horizon of knowledge in the present is in continuous development, understanding of the participants and researcher will both merge into a new understanding.

This essay-writing model is devised for learning in higher education (Fig. 1). Noroozi et al. (2023) underlined that students with high-level knowledge provide more self-regulative feedback and are more satisfied with the outcomes, that students in low-domain knowledge, but according to Haroa et al. (2023) this increased essay writing knowledge will only happen through direct, guided, and supported feedback. There are no significant between direct and undirect feedback when it comes to the quality of the essay says, Haroa et al. (2023).

We want to visualize our intention for a sociocultural approach to learning in higher education (White, 2010) using Gadamer's (2016) hermeneutic (Segolsson, 2011; Fleming, Gaidys., & Robb, 2003). The learning results were revealed through scientific essays (Shield, 2010; Dahl et al., 2023).

A study was set up for to find out how students in higher education expired the learning process based on the idea of student-centred education and scientific essays as result of the collaborative writing in interprofessional groups.

2.4. Research question

The model described in Fig. 1 became the starting point for organizing interprofessional higher education at the target university. The students' training emphasized reflection, argumentation and discussion
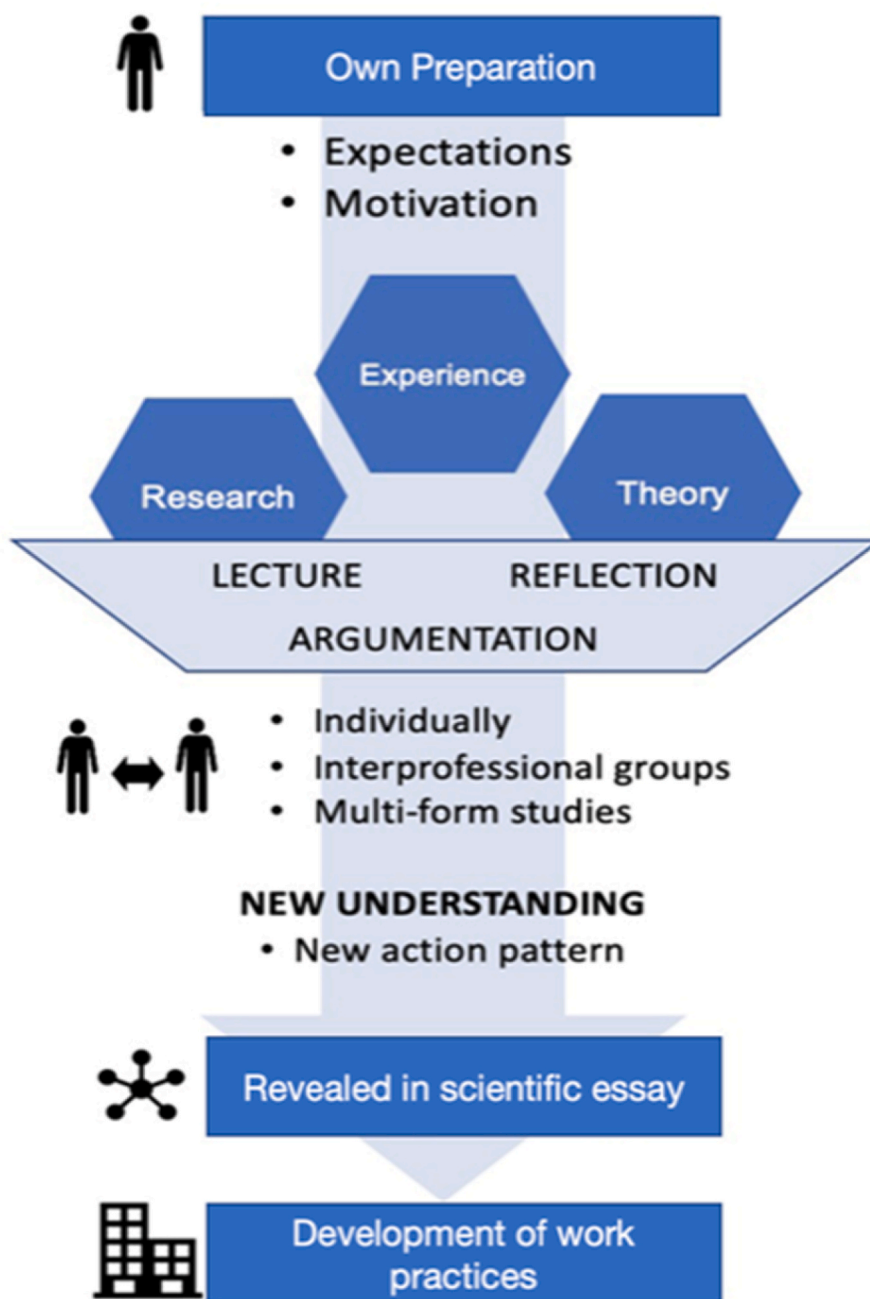
Fig. 1. Model for learning in higher education.

based on theory, research, and experience in interprofessional groups. The research question was formulated as follows:

a) What benefits do students experience with "student-centred" learning models?
b) What learning benefits do students experience with work in interprofessional groups?
c) How should student-centred models be organized and developed in writing processes?

3. Material and methods

3.1. Design

This is a qualitative study characterized by a hermeneutical design (Creswell & Poth, 2016). The study is based on informants' interpretation and construction of meaning. The data were collected in three focus group interviews with students from a university in Norway. The research retrospectively examined how students learned and experienced the target pedagogical method in collaboration with different professions during the training programme.

This study adopted an inductive approach and was conducted according to Creswell and Poth's (2016) recommendations, which describe a holistic approach that involves reflection and discovery.

3.2. Sample

The participants were nurses, teachers, physiotherapists, occupational therapists, and social workers who were part of two interprofessional higher education programs at an institute of health sciences at a

university in Norway. All students from the programs were asked if they wanted to participate in the interviews. Good ethical practice was used with the informants. In total, there were three focus groups with five to eight students in each group (*n*:19).

3.3. Data collection

The focus group interviews were conducted in the spring of 2019. Two weeks before completing their education, the students were invited to participate in a focus group interview. The invitation was extended through the students' digital study platform. Focus group interviews give researchers an opportunity to gather data in a different way than individual interviews. The key is to gain insight into the dynamics of interactions and to increase reflection during the discussions. A semi-structured interview guide, based on Malterud (2017) descriptions, was developed for this study. Questions were about experiences with the study programs, structure, pedagogical methods, and their own learning outcomes. The interviews lasted between 35 and 45 minutes. Students who participated in the focus group interviews signed a consent form. The interviews were transcribed verbatim. Method criticism: Several methods could be used in this study, but to get cross-professional group opinion, we considered that a focus group interview was a suitable method.

3.4. Analysis

The interviews were transcribed and analysed through reflexive thematic analysis in six phases: the authors familiarized themselves with the data, developed codes, identified beginning themes, reviewed the themes, defined, and named themes, and completed a final write-up (Braun & Clarke, 2021). Thematic analysis was congruent, as well as inductive, with the statements from informants, with codes derived directly from the transcription of the interviews about experiences with writing and collaboration. The steps in analysis included familiarization with the content of the data, rereading and maintaining awareness of the initial conceptualization of the data, and the generation and definition of themes according to systematic coding. Substantive codes were identified by searching line by line for significant phrases and words from the data. During open coding, there was continuous comparison for similarities and differences in different parts of the data in a nonlinear process. Substantive codes with similar meanings were sorted into groups and formed subthemes. Additionally, the properties and dimensions of each theme as well as connections between themes were sought. The researchers maintained a reflexive attitude that was conscious of preunderstanding, critical reflection, and discussion. All generated themes were continuously compared with each other. Any identified theme could be related to the other themes. Three themes on essay writing emerged from the final data analysis (Braun & Clarke, 2021).

3.5. Ethical considerations

This study was approved by the Norwegian Center for Research Data (No. 60306). (Same issue as a previously published article. Same application and informants, but not the same data material).

Each meeting started by asking the participants for permission to gather data, and participation was voluntary. Age and gender were not described to protect the informants' identities. The audio recordings were deleted after transcribing the data. The transcribed data did not contain any personal names; hence, the informants' anonymity was maintained.

4. Results

The results are presented as three themes: 1) learning benefits and learning models 2) *benefits of learning in interprofessional collaboration*

and 3) *Organisations, developments, and changes in writing processes.*

The main themes are presented with underlying subthemes exemplified by quotes written in italics (Table 1).

4.1. Learning benefits and learning models

The informants gained new knowledge or understood the old knowledge in a different way when theoretical knowledge and clinical experience met each other. This theme was divided into two subthemes: "Memory hooks" and evidence-based ideas for developing the workplace.

4.1.1. Memory hooks

When students' experiences met theoretical knowledge, the experience gained increased academic significance or became evidence for praxis. They experienced a difference in preunderstanding, analysing and interpretation of the situation which affected and deepened their understanding, which gave evidence for their decisions and actions. The informants felt that they received confirmation of the justification of their actions and decisions. At the same time, knowledge and a new understanding were created because of all the discussions and reflections that took place in the groups. It was through the discussions and reflections that new things were learned and memorized. The informants described the process when experience met theory as a creation of "memory hooks" on which the knowledge could be attached and later retransmitted. As one participant put it:

The more hooks you must hang things on, the more interesting the theory will be. If you are not able to see the connection of theory to the field of practice, then maybe the concept will be heavy [for a single hook]. The nice thing is that when you mix these two, you merge theory with what you have experienced.

Table 1
Development of themes.

Themes	Subthemes	Example quotes
Learning benefits from writing essays	Memory hooks	*The more hooks you must hang things on, the more interesting the theory will be. If you are not able to see the connection of theory to the field of practice, then maybe the concept will be heavy [for a single hook].*
	Evidence-based ideas for developing the workplace	*I have joined my colleagues with ideas that I have read and written about. New knowledge that I have spread to everyone.*
Benefits of interprofessional collaboration	Collaboration in groups/as an individual	*I think the idea of group work is very good, if you get a little mix in the working group. Then, you get a lot of thoughts and ideas that you would not have yourself, but the challenges are just working together in the group.*
	Cultural challenges	*We are three physiotherapists and a nurse; we physiotherapists make the decisions, then. That is not entirely true, but I think there are different professional cultures.*
Challenges in the writing process	Virtual challenges	*It was felt to have gone something like this, but you would have liked to see time set aside in the schedule for the group's work at the school.*
	Organizational challenges in the writing process	*To make the essay into one text, it should not appear that one person has written here and one person there. And there were additional reflections on things that we managed to get on paper.*

Each time the group resumed work, the informants felt that their knowledge and understanding were deepened. In other words, there was a deepening in the learning process. The informants moved from a level of knowing to a level of understanding. In addition to deepening knowledge and developing skills, the main concepts gained meaning. Another participant mentioned the following:

> *You take a deep dive into the literature, the syllabus, see a connection, and you are left with some knowledge afterwards when you do the assignment in that way.*

The interaction in the group led to new discussions and new reflections, and it was found that there was much in common in the problems discussed despite the students having completely different professional backgrounds. Another participant mentioned the following:

> *It probably becomes like a scientific justification for the thing [you've experienced already]: you get some confirmation of it, and it gives it a professional weight (theory). Concept clarification is perhaps one common feature of a scientific text that becomes a standard that you can use in both essays and articles.*

4.1.2. Evidence-based ideas for developing the workplace

The informants sometimes chose topics that someone knew a little less about, and then the opportunity was provided to deepen a topic that was quite foreign to at least one member. As one participant put it:

> *We have often been presented with several topics that we shall work on. Then, you pull out in the group what you most want to write about. You read up on the topics and then start writing.*

If the group had the courage to choose an unfamiliar theme for the essay, the informants felt that the theme provided new approaches to old problems. The discussions and writing process even increased the motivation to learn because learning became a natural part of working on a theme. New insights helped to develop knowledge about the workplace, and some informants started a discussion at their workplace about changes that might be justified in their environment. One participant commented the following:

> *I have joined my colleagues with ideas that I have read and written about—new knowledge that I have spread to everyone. We had the discussions before we wrote the essay, so then the essay indirectly contributed to the practice.*

The informants wondered if the essay inspired more reflections on experiences in praxis:

> *But I can't say that I learned more from writing an essay than an article. You might make more reflections when you draw more on your own reflections from practice.*

Furthermore, the freedom to write an essay was experienced as a challenge. The informants said that essay writing gave them the opportunity to formulate their ideas in a more personal way and draw their own experiences and reflections into the text. Although many saw it as something positive, or even funny, the students also had uncertainty and fear of making mistakes. A failure to comply with regulations would in turn negatively affect the evaluation of a task.

4.2. Benefits of learning in interprofessional collaboration

An important success factor for knowledge acquisition and skill development was collaboration in interprofessional groups. The theme was divided into two subthemes: collaboration in groups or as individuals and cultural challenges.

Although the work was often challenging, the informants underlined that the added value of working in a group was greater than the inconveniences and that working in a group gave significantly more benefits than working individually with the task. The diverse experience that existed in the group led to good solutions to problems, something that was lacking when writing individually.

4.2.1. Collaboration in groups or as individuals

Interprofessional groups, where students were invited to write with students from other professions, gave a high level of satisfaction. One participant reported the following:

> *I think the idea of group work is very good if you get a little mix in the working group. Then, you get a lot of thoughts and ideas that you would not have yourself, but the challenges are just working together in the group.*

The discussions and opinions in the group were nuanced from different perspectives. Although the experiences varied, several common denominators were recognized and led to the problems being discussed and highlighted from different perspectives. A participant reported the following:

> *We had several people together who could discuss and come up with good solutions. That experience differs from the experience of writing alone.*

There were also challenges in working in groups. There were times when the group did not work so well together, and then it was difficult to produce good dialogue and a good, finished text. Collaboration in the group developed, and after each time, it became easier to distribute the work and develop each other's texts. One participant reported the following:

> *The interesting thing about the group was when we sat down and discussed and came up with different experiences. To make the essay into one text, it should not appear that one person has written here and one person there. And there were additional reflections on things that we managed to get on paper.*

The informants had thought it would have been easier to write alone, but it turned out that it was not. It was difficult to define the task and difficult to feel satisfied with its results. This led to the work being delayed. The informants stated that when they wrote alone, they lacked the opportunity to discuss with others. An informant describes it as follows:

> *I thought it would be easier to write alone. I sat up until three at night and never finished it. It was difficult to finish. I had problems with limiting myself. That is what's easier in the group.*

Furthermore, the freedom to write an essay was experienced as a challenge. Essay writing gave the informants the opportunity to formulate their ideas in a more personal way. They had the opportunity to ask questions in text, and they had the opportunity to draw their own experiences and reflections into the text. After each interaction improved, it became easier to distribute the work and develop each other's texts.

4.2.2. Cultural challenges

The informants highlighted the cultural difference between, for instance, a nurse and a physiotherapist. The groups consisted of different occupational categories, and each occupational category had its own image of itself as a professional. The results showed that it was often nurses who gave in to the physiotherapist. One informant said with humour:

> *We are three physiotherapists and one nurse; we physiotherapists make the decisions, then. That is not entirely true, but I think there are different professional cultures.*

The physiotherapist described his training as having a strong evidentiary basis but at the same time stated that they were not as reflective as the nurses. There were tasks that emphasized reflection, and then the nurses' reflective ability was clear. One participant reported the following:

We clearly observed in the last assignment that nurses contributed a very large part of the reflection part. You had many good points that we others could work on then.

The informants conveyed the essay as an educational method and the work in groups as positive and meaningful for the development of knowledge.

The physiotherapy culture is probably scientific. There was lots of writing and we used to use a lot of sources and references. Work as a physiotherapist is evidence-based, and therefore, one has a strong connection to research.

4.3. Organisations, developments, and changes in writing processes

The theme was divided into two subthemes: virtual challenges and organization of the writing process.

4.3.1. Virtual challenges

A major organizational challenge was that communication between the group members overall would be virtual. To make the virtual work less, the informants suggested that more time be set aside during the study time at the university to gather in groups to become acquainted with each other and to create a relationship between the group members. One participant reported the following:

It has been laid out in a slightly different way with group assignment, we must communicate via the web, it works in a way.

One group emphasized the importance of prioritizing the group gatherings when they were on campus and skipping personal meetings. They reported that if some of the students in a group had not been at the gathering, then it would have been stressful and frustrating.

4.3.2. Organization of the writing process

Another challenge in connection with the writing was correcting each other's texts. One participant reported the following:

When we were at a gathering, we discussed which topic is of interest and distributed the work—you can start with the introduction, and you can start with the main section. There have been challenges when you have to correct others' writing styles.

Quite early, it proved not so smart to divide the work between different people. One participant reported the following:

That's probably what's interesting about the group, to sit down and discuss ideas, and come up with different experiences and things like that. To make the essay into one text, it should not appear that one has written this part here and one there. An additional reflection was needed on things we managed to get on paper.

Difficulties arose in editing the text and making the impression of an unbroken whole, rather than a text where each part revealed that a different person had written it.

5. Discussion

The study investigates how students in higher education experience a particular learning model, which included essay writing, affected their learning, (Fig. 1) and following research questions was formulated a) What benefits do students experience with "student-centred" learning models, b) What learning benefits do students expire with work in interprofessional groups.

c) How will student-centred models and work in interprofessional groups affect the essay writing process and outcomes.

With reference to previous research, it can be stated that education at the university level requires new pedagogical models to be able to respond to the needs that society poses and will pose to professionals in

different areas (Ministry of Education and Research, 2019; Øvrum; Kapstad,2021; Oseni et al., 2022; Marin, 2022). Students in higher education are often active at work and want concentrated study options that can be combined with work. Universities and educational institutions have solved this in various ways. In the present case, the interprofessional study programs were divided between self-studies, virtual learning, and physical meetings in the academic environment. Higher education provides new social contacts, personal development, increased well-being, and support for sociocultural learning (Krumsvik & Almås, 2009, 2016; Haroa et al., 2023; Muhajirah, 2020; Noroozi et al., 2023).

Benefits from interprofessional collaboration around various current and relevant themes were perceived by the students as both rewarding and challenging. Each profession has its own theoretical framework, research traditions and culture. Sociocultural learning (Muhajirah et al., 2020) was one of the benefits students highlighted during a study. We know that a teacher conveys more than curriculum outcomes to their students: they need to give useful feedback (Latifi et al., 2021) and equip students with the necessary tools to experience social and academic success both in the classroom and beyond (Franklin & Harrington, 2019; Harrington et al., 2015). Active learning or reverse education can increase commitment, motivation and learning outcomes (Fig. 1). However, the students felt challenged during the writing process and asked for more guidance from the teacher. This outcome was in keeping with previous research (Nilsen et al., 2012; Raaheim & Nysveen, 2019; Latifi et al., 2020, 2021; Dollinger et al., 2022; Marin, 2022; Dahl et al., 2023). Useful feedback can make students change direction if there is something unfortunate in the essay writing or move forward in the writing process if it stops. Feedback is also useful if there is disagreement in the writing group.

The students in this study felt their knowledge and understanding were deepened when participating in the study programs based on the developed learning model (Fig. 1). Expertise is needed in areas that represent some of the biggest challenges for the services. These include public health work and preventive care for neglect, violence and abuse, poverty, mental health and substance abuse, habilitation, and rehabilitation. This type of competence goes across professions, but each profession will have its own theoretical and methodological approach (Vasset et al., 2019; Abeysekera & Dawson, 2015; Muhajirah, 2020; Marin, 2022).

This study shows that "memory hooks" emerged as benefits from the writing process. The "memory hooks" were a result of analyses and interpretations of the students' experiences compared with research and theory, both individually and in groups. The connection between one's own experience and theory made it easier to see the meaning of the theory. The informants described this understanding as a starting point for the development of working life. The informants experienced a deepened understanding that they achieved during the writing process. Students obtained evidence-based ideas for developing their work praxis. Shields (2010) and Noroozi et al. (2023) maintains that scientific essays emphasize the importance of experience-based knowledge. This knowledge can be compared to what Gadamer calls understanding, which is a prerequisite for further development (Eriksson & Lindström, 2007; Fleming et al., 2003). Gadamer writes that one's own preunderstanding should be strengthened for development to be possible (Gadamer, 2016). Strengthening of the preunderstanding takes place both in groups and individually through reflection, analysis, interpretation, and argumentation.

The informants stated that an important process is to deal with what Gadamer calls prejudice (Gadamer, 2016). These prejudices include what we think about a subject or problem or an idea that could not be completely consolidated, e.g., through argumentation against theory and research. This process took place in the interprofessional groups that were used during the study programs. That is also what Raaheim and Nysveen (2019) and Shields (2010) underlined in their studies.

The intention was that arrangements with scientific essay writing

and workshops on a given topic would give students useful competence and understanding and, after completing their education, new patterns of knowledge to use to approach their own clinical practices. In other words, we wanted to promote the process of building new knowledge that leads to the scrutiny of previous patterns of action. The informants underlined that the discussions and writing even increased their motivation to learn because learning became a natural part of working on a theme (Fig. 1). Noroozi et al. (2023) and Haroa et al. (2023) also pointed out that peer -feedback module was effective in essay writing in master's degrees educations, but the students need guided and supported feedback (Haroa et al., 2023). The study shows that the students first thought it would be easier to write an essay alone, but it turned out that it was not. Essay writing was used as an academic method for making new knowledge visible in the text for a group of students. The study also indicates that essay writing as a pedagogical method creates opportunities to make learning experiences useable for work and individual development. Students in higher education often have experience and previous knowledge from the field. The task of education is to create a process where the student can integrate new knowledge with previous knowledge and eventually choose new models and strategies for problem solving in practice. Previous research (McGuinness, 2008; Nilsen et al., 2012; Lavelle et al., 2013; Dahl et al., 2023; Seyoum et al., 2022; Dollinger et al., 2022; Noroozi et al., 2023; Haroa et al., 2023) has also found that academic writing increases students' ability to reflect, change perspectives, subject their ideas to critical reflection, and develop personally.

Something the informants were fully aware of was the scientific approach of the essay, which at the same time made them insecure. There are great freedoms when writing an essay, but the essay assignment was expected to maintain a scientific approach (Shields, 2010). Essay writing as a pedagogical method emphasizes i.a. the importance of reflection and discussion about the students' own experiences and previous knowledge. Essays encourage students to ask critical questions of the material they work with but also to make cowriting a positive experience, such as in a scientific writing project. Despite the introduction to essay writing that was provided, the teacher could have been clearer about the rules that applied when writing an essay. Halås and McGuirk (2021) underlined that essays do not have a fixed structure but are a text that emerges as a process. It is about allowing experience to be exposed to critical reflection and theoretical considerations with new insights and understanding as a result (Heroa et al., 2023; Noroozi et al., 2023; Shields, 2010).

What the informants experienced as particularly positive was the opportunity to include their own experiences. That possibility had not existed when the students wrote before, e.g., a bachelor's thesis. The connection between theory and practice gave the students new insights and made it easier for the students to critically examine the practical activities of which they were a part. These findings are supported by the vision for continuous education put forwards by the government (Ministry of Education and Research, 2019). The government emphasizes flexible solutions, which is reflected in the fact that students work partly in class and partly virtually. Student-centred methods were used, something that the students experienced very positively, and which were inclusive. Similar results were reached in Raaheim and Nysveen's (2019) study.

The findings indicate that a major organizational challenge occurred when the communication between the group members was virtual. These challenges could be about correcting each other's texts and the cultural difference between, e.g., nurses and physiotherapists. The students also found the use of virtual solutions as challenging because of technical challenges, noise, and various nonverbal forms of communication. These findings have also been underlined by another research (Vasset et al., 2019; Noroozi et al., 2023). Møgelvang et al. (2023), in their study about digital teaching and learning in higher education, found that digital cooperative learning with student-centred approaches had a positive impact on students' well-being. Possibly benefits of digital

group learning compared to digital lectures need further exploration.

5.1. Limitations

The rigour and trustworthiness of the study were maintained by the aspects of credibility, dependability, confirmability, and transferability (Lincoln & Guba, 1985). A purposive sample of different professions participated which led to deeper collaborations between the professions and deeper development of knowledge. Two of the authors were teachers in the study programme, which may have influenced the analysis, and two others of the authors are only involved in the analysis and the writing process. The preunderstanding of the field held by the researchers contributed to efforts for a clear description of the context, sample, data collection and interpretation process. Internal consistency and other possible interpretations were taken into consideration. Dependability—or stability of the data—was reached by asking the same questions of all the informants. By presenting representative quotations in the results section, similarities and differences in the transcribed text were shown, demonstrating that confirmability was achieved (Lincoln & Guba, 1985). The study occurred at one university in Norway, which limits the study's generalizability, however the results can be transferred to similar contexts internationally. The Critical Appraisal Skills Programme (CASP) Checklist was used to promote quality.

6. Conclusion

When participating in the study programme based on the developed learning model the students felt their knowledge and understanding were deepened. The model requires good virtual platforms and responsibility and facilitation on the part of the teacher but also on the part of the students for the groups to function optimally. The interprofessional collaboration was made possible when the students were encouraged to work in groups and to deliver essays as a group product instead of individual assignments. The interprofessional collaboration was perceived as both rewarding, challenging and a reflecting process, however discussions and opinions in interprofessional groups can be nuanced from different perspectives.

Essay writing can give students in higher education the opportunity to formulate their ideas in a more personal way. The results show that during the two years that the study programme lasted, the informants gained a new understanding and new patterns of practice. Further studies on sociocultural learning and interprofessional collaboration are needed. We concluded that the model requires good virtual platforms for the groups to function optimally. Essay writing can give students in higher education the opportunity to formulate their ideas in a more personal way. Experience-based knowledge has been legitimated by the students who discovered the good interaction between theory and practice.

CRediT authorship contribution statement

Frøydis Perny Vasset: Methodology, Formal analysis, Writing of article. **Berit Misund Dahl:** Methodology, Formal analysis, Writing of article. **Gunhild Thunem:** Data collection. **Marianne Frilund:** Data collection, Methodology, Formal analysis, Writing of article.

Declaration of competing interest

There are no conflicting interests or other conflicts of interest in the study.

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