Scientific Publications

Open Journal of Food and Nutrition, 2023, 1, 765
www.scipublications.org/journal/index.php/ojfn
DOI: 10.31586/ojfn.2023.765

Article

An empirical Study on Tutors' and Students' Perceptions and Sustenance of Networking in Food and Nutrition Education in the Colleges of Education in Ghana

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Abstract: Networking has become more common in recent years because it provides structural support and consistent avenues for contact among experts. The purpose of the study was to examine tutors' and students' perceptions and sustenance of networking in Food and Nutrition education in the Colleges of Education of Ghana. Quantitatively the study employed a cross-sectional survey research design. The population of the study comprised tutors and students in the Colleges of Education in Ghana offering Food and Nutrition. Purposive, stratified and simple random sampling techniques were used to select colleges of education, 16 tutors and 256 students for the study. The main instrument used for data collection was a questionnaire. The data collected were processed and analysed with the aid of Statistical Package for Social Sciences (SPSS) version 23.0. All statistical analyses were tested at a 5% level of significance. *Levene's Test for Equality of Variances* was computed to determine the significant difference in the perception of networking in Food and Nutrition education between tutors and students. It can be concluded that both tutors and students are in favour of networking in Food and Nutrition education. The tutors and students believed networking education can foster collaboration, help implement new ideas to improve the quality of teaching, create an environment conducive to teaching and learning; and help students in sharing vital information. Since there is a positive perception on the use of networking, it is recommended that the tutors should foster collaboration, and create a conducive environment to enhance the positive perception and smooth implementation of networking in Food and Nutrition education at Colleges of Education in Ghana. The study indicated that in order to sustain networking education, teachers need to be more cognizant of their interactions and the influence they have on students. It is therefore recommended that teachers maintain contact with students, and ensure a spirit of unity in diversity among the students.

Keywords: Tutors, students, perceptions, sustenance, networking, Food and Nutrition

How to cite this paper:
Nyadroh, P. A. A. (2023). An empirical Study on Tutors' and Students' Perceptions and Sustenance of Networking in Food and Nutrition Education in the Colleges of Education in Ghana. *Open Journal of Food and Nutrition*, *1*(1), 64–73. Retrieved from https://www.scipublications.com/journal/index.php/ojfn/article/view/765

Received: November 23, 2022
Accepted: May 20, 2023
Published: September 6, 2023

1. Introduction

Food and Nutrition education focuses on the acquisition of knowledge, skills and competencies that individuals and family members require to satisfactorily improve family living in the area of food consumption [1]. Food and Nutrition Education is about teaching students to become independent, connect with others and take action towards acquisition, preparation and consumption for healthy living. Students bring together practical and cognitive capabilities and address increasingly complex challenges such as food, human development related to everyday living and their impact on physical, social and emotional health. Networking among tutors refers to tutors collectively engaging in sustained efforts to improve practices [2]. Networking is important because it fosters collaboration rather than an occasional exchange between tutors. Besides, tutor

collaboration is seen to fit into the culture of the school and for that matter, colleges [3]. Researchers captured that where tutors reported an increase in collaboration as they networked. They however suggest that networking is a promising context for stimulating ongoing collaboration between tutors and embedding collaboration into the school culture [4].

There is growing dissatisfaction with the mediums through which new knowledge is being transmitted through formal professional development activities, such as seminars and conferences, often with large numbers of attendees [5]. Teaching has been a very private affair for too long [6]. Lectures are conducted behind closed lecture room doors, even though academics have generally been exposed to ideas about improving their methodology. Many lecturers lack the support of networking to help them implement new ideas to improve the quality of teaching. Academics are often isolated in their practice and engaged in individualism, rather than collaborating [7].

In Ghana, there is the recognition of teaching as the barrier to better learning outcomes and also the solution for progress. In an article, titled, "Teaching in Ghana: Turning the barrier into the solution" "it was reported that "children sit quietly in rows, memorising facts handed down by the teacher and then they repeat them as well as they can on the exam paper" [8]. This can be linked to the teaching strategies that are used in the delivery of lessons in general and Food and Nutrition in particular. In an attempt to solve this, the government launched Transforming Teacher Education and Learning (T-TEL) in 2014 to encourage teachers to demonstrate interactive, student-focused instructional methods to ensure quality teaching and learning in the Colleges of Education in Ghana [8]. The purpose of the study was to examine tutors' and students' perceptions and sustenance of networking in Food and Nutrition education in the Colleges of Education of Ghana. The study seeks to address research questions and a hypothesis (1), How do tutors and students perceive networking in Food and Nutrition education in the Colleges of Education? (1) How can networking in Food and Nutrition education be sustained? H_{o1}: There is no statistically significant difference in tutors' and students' perceptions of networking in Food and Nutrition education.

1.1. Perception of Networking in Education

There is a growing body of literature on networking [9, 10]. However, this approach appears to have been a rather weakly conceptualised phenomenon for tutors. Researcher recognises the anxiety that can be present when a change in practice is required. They discuss the sense of loss of having to stop doing what was a once familiar practice, doubt about the level of improvement that will take place and the discomfort that is part of trying something new [11]. Educators' willingness to adopt change can be due to positive prior experiences, confidence in teaching and willingness to guide change [12]. Building confidence through structured programmes reveals that teachers feel a positive sense of empowerment at having new expertise.

Networking has become an important issue in education [13]. In addition, the activities of networking are found in other sectors such as business, organizational design, government, education, professional associations, development projects, and civic life [14]. The role of networking in the process of learning and knowledge generation has become an essential element in the context of intra- and inter-organizational or institutional knowledge transfer to policymakers and social scientists concerned with economic development [15]. Networking can be useful in developing new ideas and new strategies. Stakeholders can practice through written archives, proceedings, experiences, documents, policies, rituals, specific idioms, blogs, wikis, forums and chats [16]. Networking gives not only the golden eggs but also the goose that lays them. The challenge for organizations is to appreciate the goose and to understand how to keep it alive and productive [17]. The implementation of networking motivates stakeholders to participate in the project, sustains the interest of stakeholders and organizations and institutions that support the

learning project through networking and establishes a form of recognition of the participation of stakeholders [18].

Networking can fail due to the lack of a common, shared identity, the lack of consensual knowledge, the uncertainty factor, geographical distance, cultural factors and loose opportunities for collaboration and sharing informal knowledge [19]. Mutual trust is another barrier in networking. Along with trust, communication allows networking to grow, change and achieve its objectives. Trust building is vital for sharing and trust primarily develops through face-to-face interactions and a shared understanding [20, 21]. Teachers perceived that students get an opportunity to cooperate with teachers under the teacher network strategy, e.g. through collaborative projects with the students and other teachers. With teacher and student networking, it is important to have specific teaching materials and applications that meet diverse teachers' needs. Thus, teachers will, for example, jointly develop new applications for teaching, all based on open technologies, open-source software and open educational resources [22]. These applications can be modified and applied in each individual's teaching practice, as well as shared freely with students and parents.

Teacher networking gives the teachers ideas for hands-on activities that allow students to gain a deeper understanding of concepts during teaching and learning in the classroom, in addition to learning the structures and functions normally taught in the traditional classroom setting [23]. Teachers perceived that practical education networks (PEN) have a significantly positive impact on student test scores, as well as the ability to reverse the trend of decreasing student attitudes towards science, which holds great promise for getting more stakeholders to support the cause for more practical student learning. Based on the inconclusive evidence for students' critical thinking, PEN finds better ways to teach and measure this important skill in science education [24].

2. Materials and Methods

A quantitative research approach was employed in this study. A cross-sectional survey research design was adopted for this study. The population of the study comprised tutors and students in the Colleges of Education in Ghana offering Food and Nutrition. Purposive and Stratified sampling techniques were used to select Colleges of Education, tutors and students for the study. The purposive sampling technique was used to select 16 tutors out of 19 tutors teaching Food and Nutrition in the selected colleges for the study. Also, 14 out of the 16 public Colleges of Education in Ghana offering Food and Nutrition were purposively selected in this study. Stratified and simple random sampling techniques were used to select 256 out of 840 students offering Food and Nutrition in the Colleges of Education in Ghana. The remaining two Colleges of Education and three tutors were used for the pilot study to ensure the validity and reliability of the test instruments. Stratified and random sampling methods ensured that the key characteristics of individuals in the population were included in the sample. In selecting the students, a table developed by Krejcie and Morgan was used [25]. Based on this table the sample size determined was 256 respondents. Two hundred and fifty-six students of Food and Nutrition were randomly selected for the study. The main instrument used for data collection was a questionnaire. The data collected were processed and analysed with the aid of Statistical Package for Social Sciences (SPSS) version 23.0. All statistical analyses were tested at a 5% level of significance. *Levene's Test for Equality of Variances* was computed to determine the significant difference in the perception of networking in Food and Nutrition education between tutors and students.

3. Results

3.1. Perception on the use of networking in Food and Nutrition Education

In addressing research question one, the tutors and students were asked to indicate their views on the use of networking in Food and Nutrition education in the Colleges of Education. The analysis was based on 14 items. Means and standard deviation were run on the data and presented in Table 1.

Table 1. Responses on the perception on the use of networking

Perception on the use of networking	CAT	Descriptive		Overall mean	Decision
		Mean	Std. Dev.		
Positive perception					
Fosters collaboration than an occasional exchange	TU	4.86	0.363	4.29	Agreed
	ST	3.71	0.789		
Help implement new ideas to improve the quality of teaching	TU	4.79	0.579	4.13	Agreed
	ST	3.47	1.023		
Create an environment conducive to teaching and learning	TU	4.36	1.082	3.99	Agreed
	ST	3.63	0.875		
Help students in sharing vital information	TU	4.29	1.267	3.88	Agreed
	ST	3.48	0.988		
Contributes to both the quality of the teaching profession and the learning experience of students	TU	4.57	0.938	3.96	Agreed
	ST	3.36	1.114		
Encourages knowledge exchange at both teacher and student levels.	TU	4.71	0.825	4.28	Agreed
	ST	3.85	0.740		
Creates change in student's ability to generate enough excitement	TU	4.21	1.051	3.77	Agreed
	ST	3.34	1.188		
Negative Perception					
I am worried because networking is new	TU	1.36	0.842	1.72	Never
	ST	2.09	0.941		
I am worried because I will lose what I was once familiar with.	TU	1.36	0.842	1.73	Never
	ST	2.11	0.908		
I am worried because I doubt the level of improvement that will take place after using networking.	TU	1.36	0.745	1.75	Never
	ST	2.15	0.978		
I feel uncomfortable during the use of networking	TU	2.07	0.616	2.13	Never
	ST	2.20	1.142		
In think there is a lack of consistency and clarity on roles and responsibilities.	TU	1.21	0.579	1.84	Never
	ST	2.48	0.938		
I sometimes do not get along with the use of networking	TU	1.14	0.535	1.54	Never
	ST	1.95	0.796		
There is unfair sharing of information in networking education	TU	1.50	0.855	2.08	Never
	ST	2.66	1.160		

Key: TU= Tutor; ST = Students; CAT=Categories of respondents; Mean<3.0=Disagreed; >3.0=Agreed

Note: M_{TU}=mean for tutors, M_{ST}=mean for students

Source: Nyadroh, 2021

3.1.1. Positive Perception

The data from Table 1 indicated there were differences in the views of tutors and students in seven of the items relating to the positive perception on the use of networking in Food and Nutrition education in the Colleges of Education. The mean score of the tutors ranged from 4.86 to 4.21, whereas the mean score of the students on the positive items ranged from 3.85 to 3.34, meaning the mean ratings of the tutors are higher than that of students. The respondents perceived that networking education fosters collaboration than an occasional exchange (M_{TU}=4.86, M_{ST}=3.71), help implement new ideas to improve the quality of teaching (M_{TU}=4.79, M_{ST}=3.47), create an environment conducive for teaching and learning (M_{TU}=4.36, M_{ST}=3.63), and help students in sharing vital information (M_{TU}=4.29, M_{ST}=3.48).

In addition, the respondents perceived that networking in Food and Nutrition education contributes to both the quality of the teaching profession and the learning experience of students (M_{TU}=4.57, M_{ST}=3.36), encourages knowledge exchange at both teacher and student levels (M_{TU}=4.71, M_{ST}=3.85), and creates change in student's ability to generate enough excitement (M_{TU}=4.21, M_{ST}=3.34). This justified that the mean rating of both tutors and students met the predetermined cut-off point of 3.0. The finding showed that both tutors and the students have positive perception on the use of networking in Food and Nutrition education in the Colleges of Education.

3.1.2. Negative Perception

For the negative perception of the respondents towards the use of networking in Food and Nutrition education, 7 statements were generated. The mean score of tutors in all items ranged from 2.07 to 1.21, whereas the students' mean score ranged from 2.66 to 2.09, meaning the respondents disagreed with all statements. The respondents never agreed that they were worried because networking is new (M_{TU}=1.36, M_{ST}=2.09), worried because they will lose what they were once familiar with (M_{TU}=1.36, M_{ST}=2.11), and are worried because they doubt the level of improvement that will take place after using networking (M_{TU}=1.36, M_{ST}=2.15). Moreover, the respondents never agreed that they feel uncomfortable during the use of networking (M_{TU}=2.07, M_{ST}=2.20), there is lack of consistency and clarity on roles and responsibilities during the use of networking (M_{TU}=1.21, M_{ST}=2.48), sometimes do not get along in the use of networking (M_{TU}=1.14, M_{ST}=1.95), and there is unfair sharing of information in networking education (M_{TU}=1.50, M_{ST}=2.66). The finding revealed a less negative perception of the use of networking in Food and Nutrition education in the Colleges of Education. Also, the study showed the difference in the view of tutors and students in the items relating to the negative perception as the mean rating for the students was higher as compared to the tutors.

3.1.3. Difference in perception of networking in Food and Nutrition Education

Testing of hypothesis on difference in perception of networking in Food and Nutrition education, Levene's Test for Equality of Variances was computed to determine the significant difference in the perception of networking in Food and Nutrition education between tutors and students. Table 2 presents the results.

Table 2. Levene's Test on Perception towards Networking

	Category of respondents	N	Mean	Std. Deviation	df	Levene's Test for Equality of Variances	
						F	Sig
Positive perception	Student	227	3.55	0.15	239	21.860	.000*
	Tutor	14	4.54	0.35			
Negative perception	Student	227	2.23	0.31	239	12.858	.000*
	Tutor	14	1.43	0.27			

Source: Nyadroh, 2021; *p<0.05;

Note: *p-value is statistically significant at 5% (0.05)

Levene's Test for Equality of Variances was performed to compare the positive perception mean scores of tutors and students. As depicted in Table 2, a significant difference was found between tutors' and students' perceptions of networking in Food and Nutrition education (F= 21.860; P=0.000<0.05). However, tutors [M=4.54, SD=0.349] had the highest positive perception towards the use of networking in Food and Nutrition. Again, on whether the mean for the negative perception of tutors differs from students' perception of networking, there was a significant difference (F= 12.858, p=0.000<0.05). The students' [M=2.23, SD=0.309] negative perception towards the use of networking was high as compared to the tutors. An indication from Table 2 showed that the difference between the two means i.e. tutors and students are statistically significantly different from zero at the 5% level of significance. This implies that the null hypothesis *"There is no significant difference in the perception of networking in Food and Nutrition education between tutors and students"* is rejected. The difference in the opinions of the teachers and the students may be a result of differences in the background of tutors and students. The tutors are experienced and know the benefits of using networking in teaching and learning. The students on the other hand are inexperienced and at times do not know what networking education can do for them. These issues make a significant difference in the view of the tutors from the students.

3.2. Sustaining Networking in Food and Nutrition Education

In answering research question four, the respondents were asked to indicate the means of sustaining networking in Food and Nutrition education. The analysis of results relating to the question was done based on nine items. The mean and standard deviation were computed as presented in Table 3.

As displayed Table 4.8 there are similar view of tutors and students on the means of sustaining networking in Food and Nutrition education. The mean score of the respondents on the positive items ranged between 4.71 and 3.06, meaning both tutors and students agreed with the statements. The mean ratings of the tutors on the means of sustaining networking in Food and Nutrition education were higher than that of students. The respondents agreed that sharing what is learnt (M_{TU}=4.71, M_{ST}=3.65), sharing what is created (M_{TU}=4.50, M_{ST}=3.53), reusing what others have already learnt and created to improve personal competencies (M_{TU}=4.57, M_{ST}=3.43), learning by following or imitating (M_{TU}=4.64, M_{ST}=3.51), and communicating well with each other (M_{TU}=4.21, M_{ST}=3.15) can sustain networking in Food and Nutrition education in Colleges of Education in Ghana.

Furthermore, the respondents indicated that encouraging positive contributions from each other (M_{TU}=4.71, M_{ST}=3.57), maintaining contact with students in the team (M_{TU}=4.29, M_{ST}=3.56), consistent utilisation of networking in the teaching-learning process (M_{TU}=3.57, M_{ST}=3.34), and ensuring a spirit of unity in diversity among the students (M_{TU}=3.86, M_{ST}=3.06), can sustain networking in Food and Nutrition education in Colleges of Education in Ghana.

Overall, the respondents rated sharing what is learnt, sharing what is created, reusing what others have already learnt and created to improve personal competencies, learning following or imitating, and encouraging positive contributions from each other as dominant means of sustaining networking in Food and Nutrition education in Colleges of Education in Ghana.

Table 3. Responses on sustaining Networking in Food and Nutrition Education

Sustaining networking	CAT	Descriptive		Overall mean	Decision
		Mean	Std. Dev.		
By sharing what is learnt	TU	4.71	0.825	4.170	Agreed
	ST	3.65	0.876		
By sharing what is created	TU	4.50	1.286	4.015	Agreed
	ST	3.53	0.956		
By reusing what others have already learnt and created to improve personal competencies.	TU	4.57	0.938	4.000	Agreed
	ST	3.43	1.092		
Learn by following or imitating.	TU	4.64	0.497	4.075	Agreed
	ST	3.51	1.078		
Communicating well with each other	TU	4.21	1.251	3.680	Agreed
	ST	3.15	1.132		
Encouraging positive contributions from each other	TU	4.71	0.825	4.140	Agreed
	ST	3.57	0.981		
Maintaining contact with students in the team	TU	4.29	1.069	3.930	Agreed
	ST	3.56	1.000		
Consistent utilisation of Networking in the Teaching-Learning process	TU	3.57	1.453	3.455	Agreed
	ST	3.34	1.046		
Ensuring a spirit of unity in diversity among the students	TU	3.86	1.610	3.460	Agreed
	ST	3.06	1.273		

Key: TU= Tutor; ST = Students; CAT=Categories of respondents; Mean<3.0=Disagreed; >3.0=Agreed

Note: M_{TU}=mean for tutors, M_{ST}=mean for students

Source: Nyadroh, 2021

4. Discussion of results

4.1. Perception of the Use of Networking in Food and Nutrition Education

The first objective sought to determine the perception of tutors and students in the use of networking in Food and Nutrition education in the Colleges of Education. The finding showed that both tutors and the students have a positive perception of the use of networking in Food and Nutrition education in the Colleges of Education in Ghana. This implies that networking in Food and Nutrition education is a laudable idea that can enhance teaching and learning. This is because networking in education can foster collaboration, help implement new ideas to improve the quality of teaching, create an environment conducive to teaching and learning, and help students in sharing vital information. The positive perception of the respondents was in line with the previous study that networking education is important in helping both teachers and students to learn from one another, fill in the gaps and improve delivery methods [22]. Teachers perceive students get an opportunity to cooperate with teachers under networking education, e.g. through collaborative projects with the students and other teachers [22].

The finding collaborates with a study that networking gives teachers ideas for hands-on activities that allow students to gain a deeper understanding of concepts during teaching and learning [23]. The outcome of the study also buttresses a similar study that students perceived networking to be important despite the barriers of time, commitment to networking and technology issues that persisted to defray the effectiveness of the networking [26]. Educators' willingness to adopt change can be due to positive prior experiences, confidence in teaching and willingness to guide change [12]. Networking among tutors is important because it fosters collaboration rather than an occasional exchange between tutors [2]. Also, a similar study revealed that tutors reported an increase in collaboration as they networked. They however suggest that networking is a promising context for stimulating ongoing collaboration between tutors and embedding collaboration into the school culture [4]. The respondents' view on the positive perception of networking in Food and Nutrition education concurs with another study that networking education is useful in teaching and learning [17]. Networking is potentially an effective tool for creating institutional change by addressing roles, rules and tools, and it creates an environment conducive to change processes [17].

4.2. Sustaining Networking in Food and Nutrition Education

The study examines the means of sustaining Networking in Food and Nutrition education. The finding revealed that sharing what is learnt, sharing what is created, reusing what others have already learnt and created to improve personal competencies, learning following or imitating, and encouraging positive contributions from each other are means of sustaining networking in Food and Nutrition education in Colleges of Education in Ghana. The results of this study were in agreement with another study that the nature of teacher and student network can be sustained by improving the quality of the relationships; sharing information and encouraging positive contributions [1]. Unfortunately, this interaction not only impacts the relationship that the teacher has with the student but also affects the way the student's peers view him or her; this interaction can influence the sustainability of networking education.

Networking in Food and Nutrition education that underlies the increase in collective action between tutors and students, is coherence between subject areas and distributed decision-making can sustain networking education [27]. In sustaining networking education there is the need for teachers to share responsibility and authority for decision-making about their common practices [28]. In view of this, ongoing collaboration between tutors has become more important. Besides, tutor networking has received more attention from scholars as tutors work in a less isolated manner nowadays. A number of studies have called for the strengthening of networking between tutors by means of maintaining contact with students, communicating well with each other, and consistent utilisation of networking in the teaching-learning process [26, 29]. The finding is also in agreement with a similar study that in order to sustain networking education, teachers need to be more cognizant of their interactions and the influence they have on students [30]. Teachers should maintain contact with students, and ensure a spirit of unity in diversity among the students.

5. Conclusion and recommendations

It can be concluded that both tutors and students are in favour of networking in Food and Nutrition education. The tutors and students believed networking education can foster collaboration, help implement new ideas to improve the quality of teaching, create an environment conducive to teaching and learning; and help students in sharing vital information. Since there is a positive perception on the use of networking, it is recommended that the tutors should foster collaboration, and create a conducive environment to enhance the positive perception and smooth implementation of networking in Food and Nutrition education at Colleges of Education in Ghana. The study

indicated that in order to sustain networking education, teachers need to be more cognizant of their interactions and the influence they have on students. It is therefore recommended that teachers should be maintaining contact with students, and ensure a spirit of unity in diversity among the students.

Author's Contributions: Conceptualization; methodology; validation; formal analysis; investigation; resources; data curation; writing—original draft preparation; writing—review and editing; visualization; supervision; project administration. The author has read and agreed to the published version of the manuscript.

Funding: "This research received no external funding"

Data Availability Statement: Data is available on request from the corresponding author.

Acknowledgements: I acknowledge the respondents for their time and patience.

Conflicts of Interest: "The author declares no conflict of interest." "No funders had any role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results".

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