

# **PERCEPTION OF TEACHERS AND NURSES PRECEPTORS ABOUT CTS AND ACT EDUCATION IN THE SUPERVISED CURRICULAR INTERNSHIP IN NURSING**

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**Abstract:** The objective of this article is to present the perceptions of Teachers and Preceptor Nurses on Scientific and Technological Literacy (ACT) and Science, Technology and Society (STS) in the teaching and learning process in the Supervised Curricular Internship (ECS) in Primary Health Care (PHC). The research was carried out at a public university in the city of Ponta Grossa, in the College of Nursing, in partnership with the Municipal Health Foundation of Ponta Grossa (FMSPG) involving Family Health Units (USF) and the Graduate Program in Science and Technology Teaching (PPGECT), field research locus. The methodological approach is quantitative; data were collected through a questionnaire made available on the Google Forms online platform and answered by the research subjects, 6 Teachers and 12 Preceptor Nurses. The results showed weaknesses in the knowledge about the CTS approach, ACT and difficulties in the ECS, including the need to review/update the Protocol for supervision and evaluation of academics in the Primary Health Care (PHC) internship.

**Keywords:** Continuing education, Scientific and technological literacy, Nursing education, humanized assistance.

## INTRODUCTION

The Undergraduate Courses in the Health Area, since 2001, are supported by the National Curricular Guidelines (DCN) which, in Nursing, guide the construction of Pedagogical Projects, whose parameters contemplate the principle of interdisciplinarity, the predominance of training over information, articulation of theory and practice and inseparability between teaching-research-extension (BRASIL, 2001). In accordance with the DCN and Resolutions, the Bachelor's Degree in Nursing at the public university where this study was conducted, in Ponta Grossa (UEPG), in the Pedagogical Political

Project (PPP) regulates the Supervised Curricular Internship.

The ECS, one of the fundamental elements in the academic training of nurses, allows the re-signification of the knowledge built throughout the course, providing the development of the ability to identify problems, to critically analyze the factors that make up the experienced situation and to propose solutions. As a proximity mechanism between educational institutions and health services, it reinforces the competences of the future professional for work processes in health services, leading to the articulation between theory and practice. This participatory training process is mediated by the interlocution of teaching and learning in extramural environments, with the active involvement of training professionals and the community (ESTEVES et al., 2018).

Bearing in mind that education aims at a more critical and contextualized teaching on issues related to science and technology, it contributes to training capable of strengthening participation and citizenship. In this sense, the Science, Technology and Society (STS) approach in education for Scientific and Technological Literacy (ACT) can establish a fertile field in terms of research and application in curricular perspectives, didactic resources and teaching strategies (MARTINS; PAIXÃO, 2011).

Thus, the origin of this study comes from reflections about the pedagogical praxis that, when considering the role of the teacher, the preceptor nurse and the academic, as well as the education of the 21st century in its multiple contexts and singularities, emerged concerns and desires for change. It is believed that the insertion of CTS in the teaching and learning process in the Nursing ECS can fill gaps in the training of nurses.

As for the methodology, the approach is quantitative; data were collected through a

questionnaire made available on the Google Forms online platform and answered by 6 Teachers and 12 Preceptor Nurses. The study, approved by Opinion number: 4,915,284, on 08/18/2021, considered the guarantee of the ethical and legal principles that govern research in human beings.

In view of the above, the objective of the article is “to present the perceptions of Teachers and Preceptor Nurses about ACT and CTS in the teaching and learning process in the Supervised Curricular Internship (ECS) in Primary Health Care (PHC)”.

## PRESENTATION AND ANALYSIS OF RESULTS

The answers to the questionnaire made available from 08/18 to 09/18/2021 to 6 Teachers and 12 Preceptor Nurses showed the following results.

### ACT: INITIAL PERCEPTIONS OF THE RESEARCH SUBJECTS

In order to identify the understanding of the participants about ACT, question number: 1 was asked “What do you think is Scientific and Technological Literacy (ACT)?” The tabulated answers brought the following information and percentages (Table 1).

Participants' perceptions	Teachers (6)	Preceptor Nurses (12)
It is a methodology	3	4
Change in teaching	2	0
Unknown term	0	3
People who are unfamiliar with the term but make assumptions	1	5

Table 1 – ACT for research subjects

For seven (7) research participants, it is “a methodology for expanding the levels of scientific and technological [...] knowledge” (P4) “which provides academics” with the

development of “competences, capacities and abilities to use critical-reflexive” (P2) to “read the world where they live” (P5); “methodology or technical knowledge for solving problems in the context in which we are inserted” (EP8); “it consists of a method to develop the capacity to change the reality of an individual and of a whole society” (EP11).

From the responses, aspects of a naive view linked to the perspective of historical construction with supposed neutrality of science and technology stand out (AULER; DELIZOICOV, 2006). Furthermore, “[...] a simple integration of people into “modernity” does not guarantee social justice (housing, quality education, health, employment) and individual well-being and that of an entire society” (PRSYBYCIEM, 2022, p. 168).

Two (2) Teachers consider ACT a break with traditional teaching, as it “is opposed to the teaching of memorization and content” (P3), “no longer in a fragmented way, but from another perspective” in which ACT is seen as “a new form that configures teaching involving science and technology” (P4). Among the Preceptor Nurses, there were no observations in this regard. In the participants’ answers, it is not clear to say that they know what it is to be scientifically and technologically literate; understand how methodology and teaching change; they never refer to the TC and the social relations; demonstrate mistakes when placing ACT as a didactic strategy and overcoming traditional teaching.

The scientifically and technologically literate subject understands society’s exercise of control over science and technology and understands that both reflect society and decisions about their use (FOUREZ, 2005). It is possible to identify a reductionist perception about TC with repetition of words devoid of the dialectical perspective for the appropriation of scientific and technological knowledge in order to overcome the myths

about scientific and technological neutrality and also that of passivity (FREIRE, 1992; FUMEIRO et al., 2019).

Of some answers, eight (8) literally point out the lack of knowledge of ACT according to “I don’t know” (EP1); “I don’t know” (EP5). Of these, one (1) teacher and five (5) Preceptor Nurses made some assumptions: “I have never heard the term, but I believe it is related to [...] scientific and technological knowledge” (P6); and “I don’t know, but it could be an update on how to teach literacy” (EP3); “a teaching practice” (EP6; EP12).

The participants’ statements allude to the lack of knowledge, as it is not about “teaching practice” and denote a mistaken and reductionist view of what ACT is. It is not about “literacy” in the sense of knowing how to read and write from a previous time (FOUREZ, 2005), but about improving the argumentation of the scientifically and technologically literate subject, linked to reality, for new ways of acting and participating in the social context in relation to the social implications of science and technology (CHASSOT, 2006).

The inaccurate perceptions in the respondents’ responses can be attributed to initial and continuing training, devoid of this dimension as one observes the clear lack of preparation to work with ACT. This leads to reflection on this need, as people in general and, specifically, students, live with scientific and technological advances. Thus, once the teaching knowledge is built, it is expected that they refrain from the practice of memorizing contents and develop in students a scientific and technological literacy, at the same time that they relate what they learned in school with their life (FABRI, 2017) looking for ACT. Although these perspectives represent the objectives to be achieved, at this point in the research, it is not effectively verified.

## CTS: INITIAL PERCEPTIONS OF THE RESEARCH SUBJECTS

The results of question number: 2 “Are you aware of the Science, Technology and Society (STS) approach? How do you understand this triad?” are willing to follow (Table 2).

Participants’ perceptions	Teachers (6)	Preceptor Nurses (12)
The person declares partial knowledge	5	5
The person claims not to know	1	7

Table 2 – CTS for research subjects

About the STS knowledge and understanding of the triad, ten (10) of the participants claimed to have partial knowledge and understanding. Of these, two (2) Teachers demonstrated to have a broader view of TC that can be seen in the answers “[...] it works with interrelationships, that is, how science influences technology, how technology influences science and both are influenced by society” (P3), even so it is a limited vision and, likewise, it is the understanding of the triad in which “the social aspects of science and technology are the objects of study” whose purpose is “the understanding of science and technology and their relationships, as well as their social and environmental implications” (P5). That is, despite implicitly referring to the problematizing approach, they do not denote the reflexive nature to unveil reality, emphasizing a commitment from students and all citizens, to actions that make society better (BINATTO, 2015).

The other answers of the three (3) Teachers characterize a naive and reductionist view “I understand it to be a need in the contemporary world, which can contribute to the development of citizenship and individual autonomy” (P1); it is a “technology area” that “investigates phenomena related to human health through concepts and techniques related to technology and health” (P2);

understands the triad as “interdisciplinary methods that contribute to the development of citizenship in which pedagogical strategies are used” and combine “theory and practice according to reality involving social, cultural, technological and scientific phenomena” (P4). The answers denote a certain subjectivity and evasiveness, as well as considering only CT questions or wrong ones considering it a methodology.

Distant from considerations of the STS approach, as defended by Paulo Freire, the dialogicity developed by a praxis capable of leading students to understand the different perspectives and values is not identified in the speeches, enabling them to build their understanding of the world related to politics in favor of responsibility of social change (FREIRE, 1992).

Of the Preceptor Nurses, five (5) claim to know and understand CTS partially and make inferences with some degree of knowledge, however, even so, they indicate a traditional and limited perspective, demonstrating passively accepting the fact of surrendering to the use of technologies on a daily basis. to infer “Science cannot be separated from society and technology, since we are increasingly connected to information, computerization” (EP6) and “is related to interdisciplinarity, the democratization of knowledge and social participation” (EP9). In this sense, science and technology cannot be seen in isolation from their social dimensions, under the risk of contributing to maintaining the mistaken view of this knowledge, neglecting the influences and economic interests of a minority (SANTOS: MORTIMER, 2002).

There are also among these participants, those who contradict having knowledge by evidencing in their statements a traditional view “[...] through science we manage to develop certain behaviors in the face of a problem” (EP1). In “it is the junction between

investigative scientific knowledge linked to the various ICTs at the service of society” (EP8), they point to reductionist perspectives. This occurs because they omit negative aspects of science and technology, risks and economic and political interests (FABRI, 2017).

Of the Teachers, one (1) claims to be unaware of the STS approach “I don’t know” (P6). Similar responses were observed in seven (7) of the Preceptor Nurses when they said they did not know or did not know (EP2; EP3; EP4; EP5; EP7; EP10; EP12).

It is understood that Education has a preponderant role in the critical/reflexive formation of students, future professionals in the critical STS perspective, in the same way that CF can contribute to changing mistaken views about the focus. The student must be formed as a subject capable of thinking, studying, directing and also controlling who directs. It is considered “[...] the refusal to prepare socially and academically isolated individuals to merely adapt to the established order” (SILVA; FERNANDES, 2019, p. 7).

The excerpts listed in this question contribute to confirm that the field of STS approach in education is polysemic (AULER, 2011) and may be linked to the pedagogical spaces found by the researcher to develop his work and not, properly, his understanding of STS. The intrinsic complexity of STS issues also makes it difficult to implement the assumptions of this movement in the educational context (STRIEDER; KAWAMURA, 2017). However, it is prudent to consider unlikely, from an educational perspective, the existence of a single understanding about working with STS in an articulated way, since the plurality of meanings of this triad reflects the complexity of the aspects involved that cannot be ignored or underestimated (AULER, 2011). Continuing Education, especially in this study, aimed at Teachers and Preceptor Nurses, proves to be opportune, necessary and urgent.



## DIFFICULTIES IN THE SUPERVISED CURRICULAR INTERNSHIP IN A FAMILY HEALTH UNIT FOR ACADEMIC TRAINING

Question number: 3 “In your opinion, what are the gaps that the ECS in the Family Health Unit presents in the formation of the Academic?” brought the results shown in the sequence (Table 3).

Participants’ perceptions	Teachers (6)	Preceptor Nurses (12)
Vulnerability in the interaction Teachers x Preceptor Nurses x academics	2	9
Lack of continued training	3	2
Insufficient workload	1	1

Table 3 – Academic formation and difficulties in ECS at USF

The limited interaction between Teachers, Preceptor Nurses and academics was pointed out by eleven (11) of the research participants, as observed in the responses: “[...] A short time makes bonding difficult” (P4); “Difficult interaction between nurses and academics due to the professional’s work overload” (P5) and for the majority, nine (9), of the Preceptor Nurses, as verified in “Lack of integration between professionals and teaching-service” (EP4 ); “Lack of contact with Teachers” (EP1; EP7; EP9).

Among the possible causes that cause difficulties in the interaction of those involved in the ECS, it must be noted that traditional teaching and contents that have not yet been sufficiently worked on in practice contribute to gaps, such as lack of academic perspectives, inability to self-transcendence, limited reflective practice, lack of empathy, attitudes towards people, emotional states and cognitive maturity (PASCOAL; SOUZA, 2021).

The lack of continuing education is pointed out by three (3) of the Teachers as a gap that makes it difficult to understand the “Real role

of the nurse in the PHC – USF” (P1), as well as inhibits “[...] technical/managerial skills of the nurse; interdisciplinary discussions, realization and feedback of the nursing process [...] difficulty in evaluating academics” (P6). Two (2) of the Preceptor Nurses who evidenced the lack of continuing education also highlighted “The lack of alignment of objectives between teaching and service” (EP3).

The training of professionals, a process permeated by complexities, requires effort and dedication from everyone. In the ECS, teacher and preceptor nurse need support and contribution to be able to contribute more effectively in the construction of knowledge of the academics, since in the formation of the future nursing professional, the human factor of each involved must be more valued (SILVA et al, 2019).

It is unquestionable that the academic environment is a promoter of theories and that the internship area is adequate and prepared for the practical application of teachings, but it is substantial and undoubted to reflect on the need to implement changes in the training of future professionals through the FC of those who have the responsibility of conducting and developing the training process of professional nurses.

As for the insufficient workload to direct the academic, it was pointed out “The overload of activities of the nurse in USF, leaving little time to direct the student [...] insufficient workload for the professors to carry out the supervision” (P3) and the “Lack of of time for case discussions with academics. Not being able to be present in the performance of all procedures” (EP10). Although the perceptions complement each other, it is important to understand that the use of the available time must favor the teaching and learning of academics, reverting to benefits for patient care, better use of the internship

and improvement of the team (OLIVEIRA, 2014).

**SUPERVISED CURRICULAR INTERNSHIP AT USF: HOW TO IMPROVE?**

Question number: 4 “In your opinion, what are the suggestions to remedy the gaps that the ECS at USF presents in academic training?” presented the following results (Table 4).

Participants' perceptions	Teachers (6)	Preceptor Nurses (12)
Expansion of teaching and learning opportunities through integration/interaction academy/field/teaching/service	3	5
To Improve the ECS schedule	0	3
Training / Continuing Education to improve performance	3	4

Table 4 – Possible solutions

Eight (8) participants suggested, in order to solve the gaps in ECS, the expansion of teaching/learning opportunities through the integration between academia/field/teaching/service, as can be seen in some responses: “Theoretical-practical deepening [...] that the preceptor may be available to interact more with the students and the professor” (P1); “Enhance teaching and learning opportunities, not in the sense of increasing the workload, but in terms of effectiveness” (P5); “Have time for more dialogue with the academic” (EP10) and “Psychological support for academics who need it” (EP3).

Overcoming gaps in ECS at USF can occur through the use of countless methodologies and means, involving Teachers, Preceptor Nurses and academics in the process of integration between HEIs and health services. In this regard, the results of a study demonstrate the perception of professors and Preceptor Nurses about possible adjustments to remedy various difficulties in the internship “[..] It is necessary

to bring the supervisor nurses closer to the Teaching Institutions so that the activities be developed with more egalitarian and effective partnerships [...]”. The supervisor nurse must effectively participate in activities (at school) (RIGOBELLO et al., 2018, p.4).

Three (3) of the Preceptor Nurses suggested improving the ECS schedule. Seven (7) research participants suggested the promotion of training/continuing training for more effective action, indicated as a solution to remedy gaps in the ECS, according to their considerations: “Training for preceptors and teachers” (P4) and, although it emphasizes training only for supervision “Moment of improvement, for example, pedagogical week, but focused on supervision” recognizes the need for interaction “It is urgent that teaching and service talk” (P6); “Perform training with teachers and nurses” (EP1; EP2; EP4) and “Continuing education [...] training course for preceptors” (EP7).

The participants demonstrate that they understand that the intended improvement requires the deepening of knowledge, the reconstruction, deconstruction and construction of new knowledge consistent with the experienced reality. A scenario formed by these elements encourages the development of professional clinical skills and improves the quality of Nursing services and care, provided to the community in a safe way, as contextualized knowledge is instituted in a transforming practice due to dynamics and innovation (COLLISELLI et al, 2009).

**SCRIPT FOR SUPERVISION AND EVALUATION OF ACADEMICS IN THE ECS: NEED FOR IMPROVEMENTS**

To find out the participants’ opinion, question number: 5 “What is your perception of the form or script for supervision and evaluation of academics in the ECS at USF? Is

it adequate? Justify your answer” showed the following positions (Table 5).

Participants' perceptions	Teachers (6)	Preceptor Nurses (12)
It is adequate	1	1
It is partially adequate	2	9
It is not adequate	3	2

Table 5 – Instrumentalization for supervision and evaluation in the ECS

Only one (1) professor and one (1) preceptor nurse understand that the sheet or script for supervision and evaluation “is adequate”. For the majority, eleven (11) participants “It is partially adequate” can be confirmed with arguments such as “It needs some modifications to contemplate the APS guidelines” (P1); “It must be reviewed” (EP5) “some items are not in line with our daily activities at the USF” (EP7; EP10; EP11).

About the instruments (sheet or script for supervision and evaluation of the academic), five (5) research subjects understand that they are “not adequate”, because “they do not meet the reality of the USF” (P2); “they are disconnected from the updates and implementations that occurred in Public Policies” (P4); “They don’t match because the assessments need to be revised” (EP4).

It is possible to consider the answers to question number: 5, in a professional and subjective sphere at the same time, since the justifications demonstrate diverse perceptions and print varied demands. Elaborating the student’s supervision schedule and process, guidance by the teacher and preceptor nurse at the internship location, exercise of skills and general skills (health care; decision-making; communication; leadership; administration; management and continuing education) are procedures that must be evaluated by the professionals involved in the internship (BOSQUETI; BRAGA, 2008).

Bearing in mind the use of SUS scenarios

as a learning space and changes in Public Policies, articulating teaching/service, the use of instruments to supervise and evaluate students must be, in addition to being up-to-date, consistent with the reality in which the ECS is developed. It must favor reflection on the reality experienced in the production of care and the need for transformation which presuppose teamwork (Teachers, students, Preceptor Nurses) to seek solutions to challenges and, concomitantly, meet demands with higher quality of services provided the community.

### RELEVANCE OF FC FOR TEACHERS AND PRECEPTOR NURSES

In Question number: 6 “Do you think it is important to participate in training and/or updates for Teachers and Preceptor Nurses, for supervision and evaluation of ECS at USF? Justify your answer” the results showed unanimity (Table 6).

Participants' perception	Teachers (6)	Preceptor Nurses (12)
It is relevant to participate in training and/or updates	6	12

Table 6 – Continuing Education: importance

All professors and all preceptor nurses stated that CF is relevant. Among the responses of teachers who highlighted the importance of CF, the complexity of the evaluation process, the need and importance of updating stand out, as “the practices and policies related to PHC change very frequently” (P2). Preceptor nurses recognize that it is “necessary for preceptors to receive permanent education. Teaching in service [...] to align the objectives of the internship” (EP1); aiming to “optimize the teaching-learning process, which sometimes is not so easy when we do not have experience in teaching” (EP7) and, the benefits contribute “effectively in the training of academics” (EP11).



Regarding the teaching FC, LDB number 9394/96 provides in art. 87 that the Federal Units are responsible for carrying out training programs for all teachers in practice (BRASIL, 1996). Based on this regulation, it must be considered that professional nursing work also involves the teaching area (REINALDI et al., 2021).

The field for discussions on the importance of CF and inherent aspects, although expressively broad in intrinsic and extrinsic meanings, holds a consensus that recognizes its importance and necessity as undeniable. The HR of professors and preceptor nurses facilitates the development of new skills. In the process involving teaching, learning, theory, practice, health and illness, the humanized care of all professionals towards the community must prevail, improved and unwavering.

### TEACHING-SERVICE INTEGRATION, INTRA AND EXTRAMURAL DURING ECS AT USF

Question number 7 brings answers to “What is your perception about the teaching-service integration, intra and extramural during the ECS at the USF?”, displayed in the sequence (Table 7).

Participants' perceptions	Teachers (6)	Preceptor Nurses (12)
The teaching-service integration, intra and extramural during the ECS is congruent with the purposes for which it is intended	6	7
Weaknesses in teaching-service integration, intra and extramural	0	5

Table 7 – Teaching-service integration in ECS at USF

For six (6) of the professors, the teaching-service integration, intra and extramural during the ECS is congruent with the purposes for which it is intended according

to the answers “it contributes to reflection on professional practice [...] it motivates academics, professors and professionals of services for a new way of acting and assessing the health needs of the population” (P1), “reinforces the responsibility of teaching, service and society in transforming care practices and training future nurses” (P2; P4 ; P5) and provide academics with contact with “the health networks in the ECS, the established PHC model and the USF” (P3).

As for seven (7) of the nurse preceptors, they point out that the aforementioned integration “serves as a stimulus for the qualification and technical improvement of workers” (EP11), one can note in this response the emphasis on technique to the detriment of the humanization of health care; “improves the flow of the USF” (EP5); it involves “actions carried out by academics at the health unit, health professionals and the community, providing opportunities for reflection, discussion and exchange of experiences” (EP12).

About the perceptions that point to weaknesses in the teaching-service integration, intra and extramural during the ECS at the USF, the professors did not point in that direction; while five (5) of the preceptor nurses stated that the aforementioned integration “is still very far from reality between theory and practice” (EP2; EP3; EP4); is “Fragile with regard to extramural relations” (EP8) and “Integration could be greater” (EP9).

Therefore, it is understood that it is essential to understand care beyond the reductionist view of assistance to the user or the disease, the focus must be on the essence, that is, on health from a holistic perspective (SOUSA et al., 2010). Therefore, “[...] it becomes unthinkable to provide humane and integral care without considering the subjective aspects of their humanity [...] people need individualized, involved, profound care” (MONTEIRO et al.,

2016, p. 2-3).

Users demand a professional who knows how to show understanding, who transmits confidence and, more than scientific knowledge, who also has charisma, who shows love and knows how to use the spirit of compassion in a balanced way. Action like this requires a solid construction, on theoretical bases (university/teaching/learning) and also with foundations in practical action (health services/teaching/learning), thus validating the integration of teaching and service.

## **FINAL CONSIDERATIONS**

Notoriously, the initial diagnosis raised conclusive information about the perception (limited vision, naive linked to the reductionist perspective) of the research subjects, about ACT and CTS, as well as the difficulties and challenges faced in the ECS. The observed evidence infers the relevance of a CF proposal for professors and preceptor nurses, covering the themes ACT, CTS and ECS.

It also highlights the need to review and rebuild the Protocol for actions and procedures for supervision and evaluation of Nursing students at the researched University, since professional training must be able to integrate teaching and service beyond the Teaching Institution and internship field.

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