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***“Greek teachers’ and scientific experts’
perceptions of student motivation to learn
chemistry”***

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Outline and Objectives

- Introduction: Motivational constructs
- Greek Teachers' and experts' perceptions
 1. *What motivates students to learn chemistry? (Constructs)*
 2. *Which factors influence students' motivation? (Factors)*Data collection: Workshop activities – Content analysis – Constant comparative method
- Why study perceptions?

Perceptions influence choice of strategy (*effort and interventions*)

Introduction

Motivation to learn: “A student tendency to find academic activities meaningful and worthwhile and to try to derive the intended academic benefits from them“



Motivational constructs: The psychological concepts that constitute the general term. The building blocks of motivation.

Why know constructs: *Prediction of achievement behavior*

Introduction

Motivational constructs (Intrinsic, *Literature*)

•**Self-determination:** Ability to have choices and some degree of control in what we do and how we do it

•**Self-regulation:** Goal-directed behaviour. Students who know what they want to accomplish when they learn science and who adopt appropriate strategies to bear and continually monitor their progress toward their goals

•**Self-efficacy:** “Beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments”

•**Teachers' expectations**

Research Methodology

Participants (N = 16)

- 3 primary school teachers and 8 secondary school teachers from 9 different schools
- 5 scientific experts from 5 different Institutions
- Four groups of four persons each
- Each group containing at least one scientific expert

Workshop activities

Participation of all groups in three activities

- Participants were given a specific amount of time (ca 25-30 minutes) to freely interact with the other members of their group and discuss the theme of the activity.
- At the end of this free interaction, each group was asked to present the summary of their in-between discussion via one spokesperson for a maximum period of 10 minutes.
- The spokespersons talks were taped and transcribed.

Research Methodology

Activity 1

Discussion on the content of the database of the “Chemistry Is All Around Network” project.

Activity 2

Current situation in Greece in respect with students’ motivation to learn chemistry according to the personal experiences of the participants

Activity 3

Proposals for overcoming the problem of lack of student motivation to learn chemistry through participants’ conceptions

Results and Discussion

Teachers' and experts' perceptions of what motivates students to learn chemistry

1. Extrinsic Motivation (Grades and Job opportunities) (All 4 groups)

- *“... Ph.D. students in research centers are interested in getting a Ph. D. degree in order to gain some additional bonus points in their search for getting a permanent job in the public sector...”*
- *- “We note also that especially in upper secondary school, students are very often interested only in their grades...”*

2. Interest (2 groups)

- *- “... Students want to learn about things which are related with their everyday life and which show the usefulness of chemistry...”*
- *- “The curriculum content is not very big but it is not very interesting for the student...”*

Results and Discussion

Teachers' and experts' perceptions of what motivates students to learn chemistry

3. Self-regulation (3 groups)

"...experience shows that all student types exhibit a large enthusiasm when they finally work in the lab with the goal of preparing pure aspirin"

4. Self-efficacy (2 groups)

"... Students tend to be indifferent towards the subject and fear that they will not be able to perform well. When they realize for example that they can perform a simple experiment on their own, they can really "take off" and develop their own internal motivational structure"

5. Teachers' expectations (1 group)

"...In several cases, teachers themselves have very low expectations from their students and they are not interested in motivating them"

Results and Discussion

Identified Motivational Constructs

Motivational constructs	Activity 1	Activity 2	Activity 3
Extrinsic motivation	Group 1 Group 3	Group 2 Group 4	Group 2
Interest	Group 1	-	Group 3
Self-regulation	-	Group 1 Group 2	Group 3
Self-efficacy	-	Group 1 Group 3	Group 3
Teachers' expectations	-	Group 4	-

Results and Discussion

Teachers' and experts' perceptions of the factors that influence students' motivation to learn chemistry

1. Curriculum design (All 4 groups)

Content, teaching resources, instructional context (rote learning, teaching theoretically without practical experimentation, or by making no links between chemistry and everyday life)

"...In secondary school, students do not know what chemistry is about and they need to be convinced that it is important for their lives. In fact, starting from primary education we need to note that the word "chemistry" is never mentioned in the curriculum even though the pupils are taught different chemical phenomena (like for example the water cycle)"

"...Every educational level "does" something wrong that is then transferred to the next one and also magnified"

"...It is useful that we also make use of the historical aspect of chemistry so that students get an idea of how knowledge is being conquered and how ideas evolve in science"

Results and Discussion

Teachers' and experts' perceptions of the factors that influence students' motivation to learn chemistry

2. Teacher (All 4 groups)

Personality, training, motivation of the teacher

"...The teacher can exert a large influence on the students by constant encouragement, by convincing them that they can do well in chemistry. Especially in the young ages (up to 15-16 years) the teacher can largely influence motivation via his personality, personal paradigm and teaching approach."

"...Teachers need to develop their own intrinsic motives and acquire the necessary skills so that they feel confident enough to use new teaching tools and teaching strategies."

3. Family (1 group)

"...The family environment can cultivate a specific learning culture and value system and help the child develop special interests"

Results and Discussion

Identified motivational factors

Motivational factors	Activity 1	Activity 2	Activity 3
Curriculum design	Group 3 Group 4	Group 1 Group 3	Group 1 Group 2 Group 3 Group 4
Teacher	Group 1 Group 3 Group 4	Group 3	Group 1 Group 2 Group 3 Group 4
Students' family	-	Group 2	-

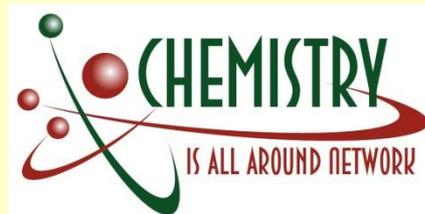
Discussion

- Educational practitioners' (ie teachers and experts) intuitive understanding of motivational constructs is integrated into the teaching practice and their interactions with the students and it facilitates (or not) learning and personal growth
- Thus, educational policy makers should take into account the perceptions of educational practitioners on student motivation
- *Emotional and cognitive dimensions of learning are inextricably entwined. Chemistry learning experiences need to be fun and personally fulfilling for maintaining motivation*
- *Self and social processes influence motivation simultaneously*
- *Professional learning opportunities should be provided for teachers in order to help them put in practice successful techniques for encouraging unmotivated chemistry students.*
- **Parallel research is needed on the perceptions of students in order to have a complete picture of the motivation map**

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**Thank you for your
attention**