

## Research Tools

### Appendix A : Growth mindset survey

**Part I :** This survey seeks to understand your beliefs. Participation will not affect your grades or academic standing in the classroom. The findings from this research will be utilized to enhance chemistry instruction. Should you be willing to provide information, please indicate your consent and proceed to answer the following questions. If you prefer not to participate, select the option indicating your non-consent and submit the form. We appreciate your time and effort in completing this survey

#### Part II: Basic information

Cooperation Network Center

- Upper Northern Region       Lower Northern Region       Upper Central Region  
 Lower Central Region       Eastern Region       Upper Northeastern Region  
 Upper Southern Region       Lower Southern Region       Lower Northeastern Region

Cumulative Grade Point Average (GPA) (please specify) .....

Chemistry Grade (last semester, please specify) .....

**Gender**       Male       Female

**Family's Economic Status** (Average Monthly Family Income)

- less than 12,900       13,000 – 19,000       20,000 – 29,000       30,000 – 35,000  
 35,500 – 46,500       46,000 – 67,000       more than 67,000

**Part III:** Consider the following statements and select the number that best aligns with their belief (1 representing the least agreement with your belief and 6 representing the most agreement) (Dweck, 1999).

Level of Agreement

Statement	1	2	3	4	5	6
1. You have a certain amount of intelligence, and can't really do much to change it.						
2. No matter who you are, you can significantly change your intelligence level.						
3. Your intelligence is something about you that you can't change very much.						
4. You can always substantially change how intelligent you are.						
5. To be honest, you can't really change how intelligent you are.						
6. No matter how much intelligence you have you can always change it quite a bit.						
7. You can learn new things but you can't really change your basis intelligence.						
8. You can change even your basis intelligence level considerably.						

## Appendix B : Chemistry Intelligence

**Direction:** this survey consists of 20 questions divided into 3 sections. Please answer the questions based on your genuine beliefs. The purpose of the survey is to benefit the advancement of chemistry instruction.

**Section I:** Consider the following statements and select level of agreement that corresponds most closely with your beliefs. A rating of 1 indicates a belief in the impossibility of change, while a rating of 10 indicates a belief in the definitely possibility of change.

No.	Statement	Level of agreement									
		1	2	3	4	5	6	7	8	9	10
1.	My ability in problem-solving in chemistry.										
2.	My ability to learn new chemistry content with understanding.										
3.	My ability to apply chemical knowledge.										
4.	My ability to memorize chemistry content.										
5.	My ability to visually conceptualize chemical structures and related processes.										
6.	My ability to use mathematical equations and logical reasoning.										
7.	From statements 1-6, which aspects do you think are most related to chemical intelligence? (You may choose more than one). Please explain your reasons <input type="checkbox"/> problem-solving in chemistry <input type="checkbox"/> ability to learn new chemistry content with understanding <input type="checkbox"/> apply chemical knowledge memorize chemistry content <input type="checkbox"/> memorize chemistry content <input type="checkbox"/> visually conceptualize chemical structures and related processes <input type="checkbox"/> use mathematical equations and logical reasoning										

**Section II:** When you read these phrases, how do you interpret their meaning? Answer the following questions by typing your answers in the provided spaces.

No.	Statement
1.	My ability related to solving chemical problems.
2.	The ability to learn and understand new content in Chemistry.
3.	The ability to apply chemical knowledge.
4.	The ability to memorize information content in Chemistry.
5.	The ability to visualize chemical structures and related processes.
6.	The ability to use mathematical equations and logical reasoning in Chemistry

**Section III:** Respond to the questions by selecting a checkbox that most agreement and typing their answers in the provided spaces

No.	Statement
1.	Who has the most influence on promoting self-efficacy beliefs in learning Chemistry? <input type="checkbox"/> Myself <input type="checkbox"/> Parents <input type="checkbox"/> Close individuals (e.g., siblings, relatives) <input type="checkbox"/> Chemistry teacher <input type="checkbox"/> Classmates <input type="checkbox"/> Close friends <input type="checkbox"/> Homeroom teacher <input type="checkbox"/> Others
2.	Please provide an example of an event, action, or statement from an individual mentioned in question 1 that has influenced and reinforced your belief in your own abilities to learn Chemistry. (Type your answer in the space provided)
3.	Who is the most significant impact on diminishing your self-belief in your ability to learn Chemistry? <input type="checkbox"/> Myself <input type="checkbox"/> Parents <input type="checkbox"/> Close individuals (e.g., siblings, relatives) <input type="checkbox"/> Chemistry teacher <input type="checkbox"/> Classmates <input type="checkbox"/> Close friends <input type="checkbox"/> Homeroom teacher <input type="checkbox"/> Others
4.	If it is possible, please provide an example of an event, action, or statement from the individual mentioned in question 3 that has negatively impacted and diminished your belief in your own abilities to learn Chemistry (Type your answer in the space provided)
5.	If there is an incident where you are unable to solve a chemical problem or apply chemical concepts to solve a problem in Chemistry, how would you feel and react to such an event? <input type="checkbox"/> Not discouraged and try to find the answer using different methods <input type="checkbox"/> Feel despair and lose hope in learning Chemistry <input type="checkbox"/> Feel discouraged and believe the subject is too difficult for me <input type="checkbox"/> Not worried because I do not use chemical knowledge in further studies
6.	What type of praise would you like to hear when you achieve success in any aspect of learning Chemistry? (Type your answer in the space provided)
7.	When you make a mistake or face disappointment in Chemistry, from whom would you like to receive consolation, and what kind of comforting words would you prefer to hear? (Type your answer in the space provided)