A Decision Framework for Using Mood as Context in Recommender Systems

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DEFINITION : MOOD

Mood is defined as "constantly evolving general affective states felt by individual"

(Holbrook & Gardner, 2000)

MOOD AND BEHAVIOUR

Psychologically, users intend to make conscious and unconscious selection over entertainment content that serves to maintain positive mood and repair or diminish pain in terms of both intensity and duration

(Gardner, 1985; Holbrook & Gardner, 2000; Isen, 1984; Oliver, 2008; Ryan, Rigby, & Przybylski, 2006)

MOOD AND BEHAVIOUR

users are capable of dynamically updating their mood during and following various activities (Gardner, 1985; Ryan et al.,2006)

Individual mood is known to be quite easily influenced by little things (Isen, Means, Patrick, & Nowicki, 1982)

such as by weather elements such as temperature, wind and sunlight (Denissen et al., 2008).

RECOMMENDER SYSTEMS

Recommender systems apply knowledge discovery techniques to the problem of making personalized recommendations for information, products or services

RECOMMENDER SYSTEMS: DOMAINS

Movies, Music, Books, Travel, Restaurants, Dating service, E-learning, TV programs, Research Papers, Websites, News, Social network sites, Vacations ...

MOOD AS CONTEXT IN RECOMMENDER SYSTEMS

Large variety of information consumption from news, documents, sport to comedies, dramas, music are influenced by user mood

Zillmann (1988)

Music recommendation based on users' interest and emotions
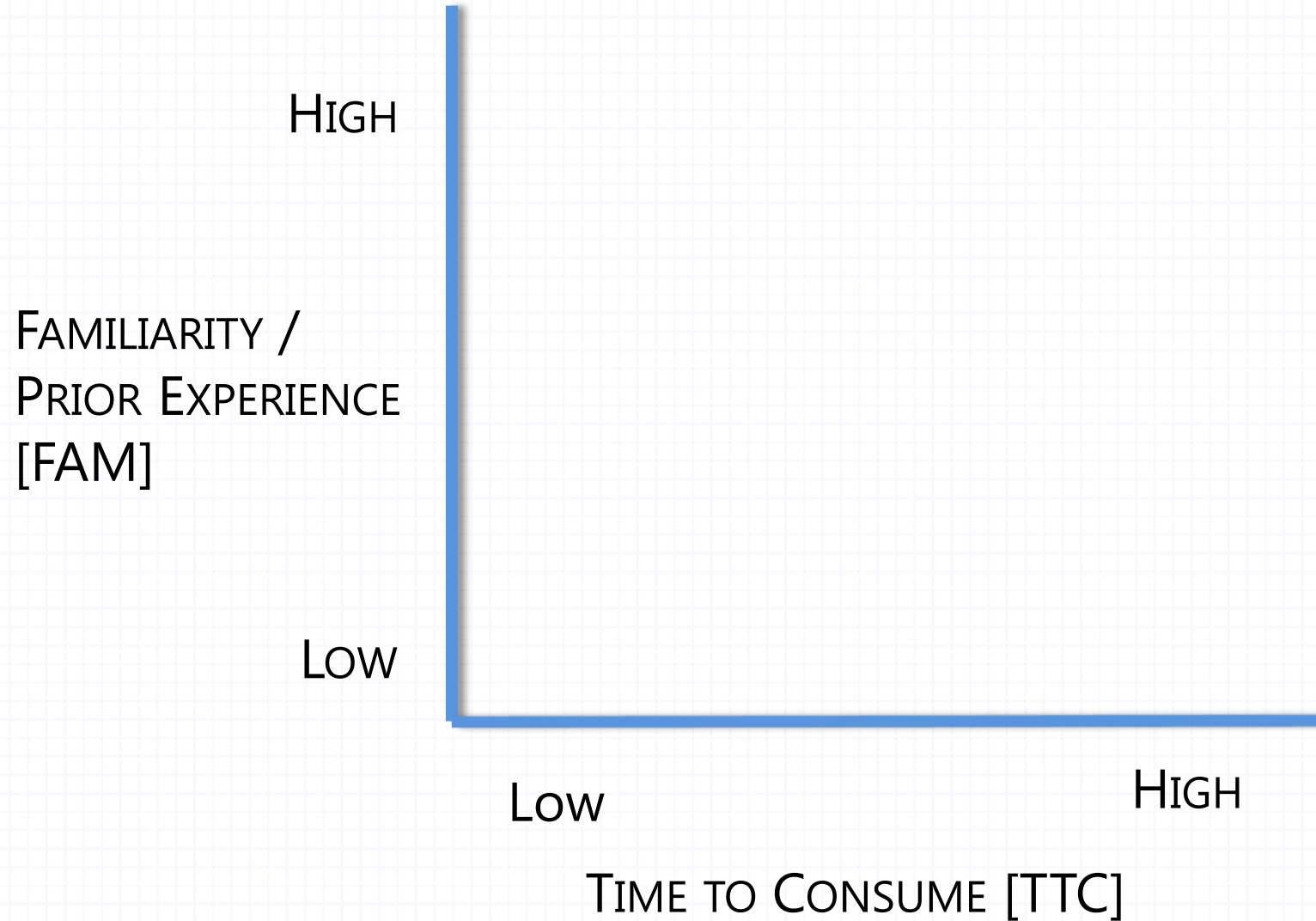
Lu and Tseng (2009)

Mood-aware collaborative-filtering
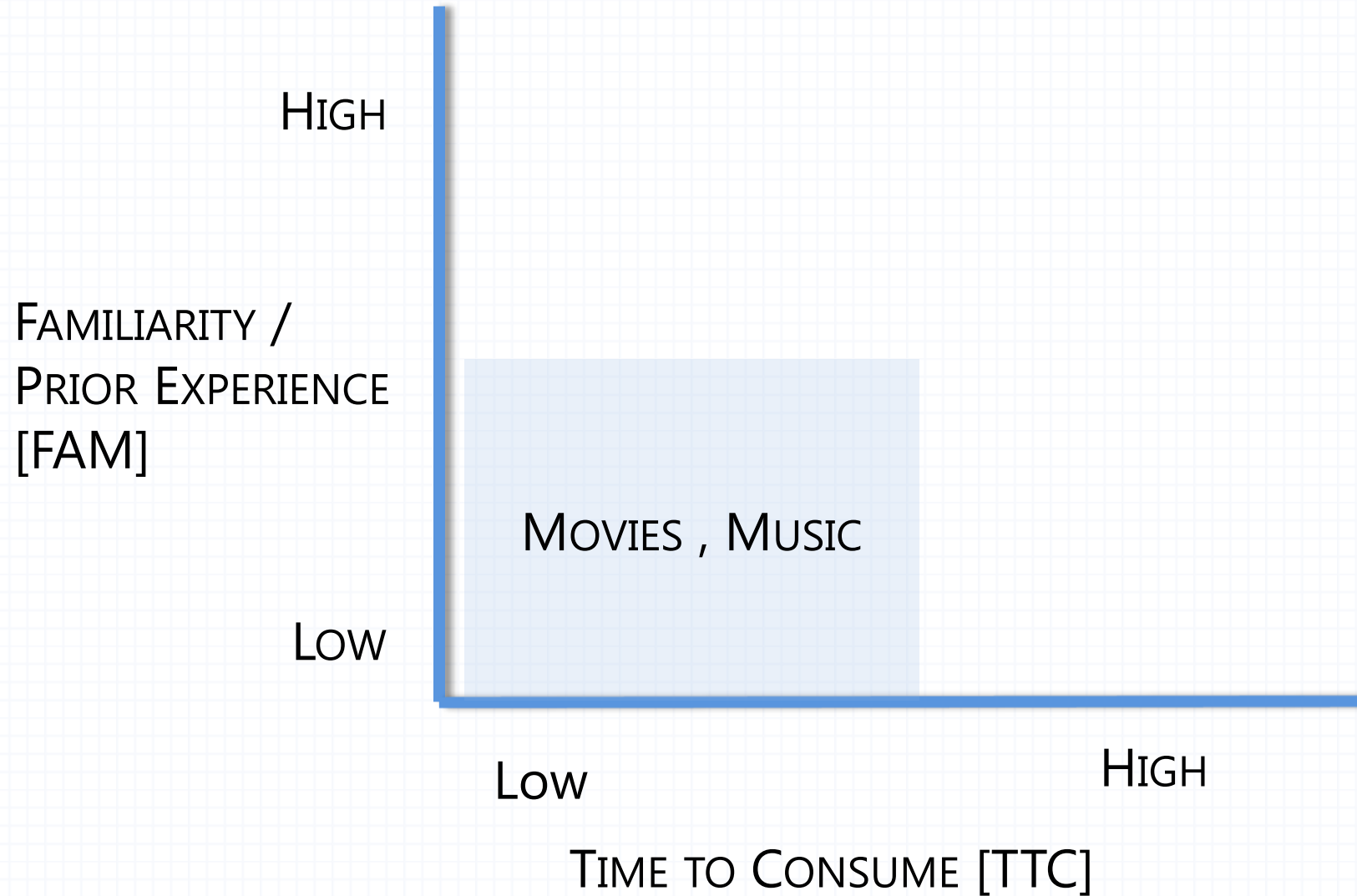
Winoto and Tang (2010)

RESEARCH QUESTION

For which domains should mood be used as context while designing recommender systems ?
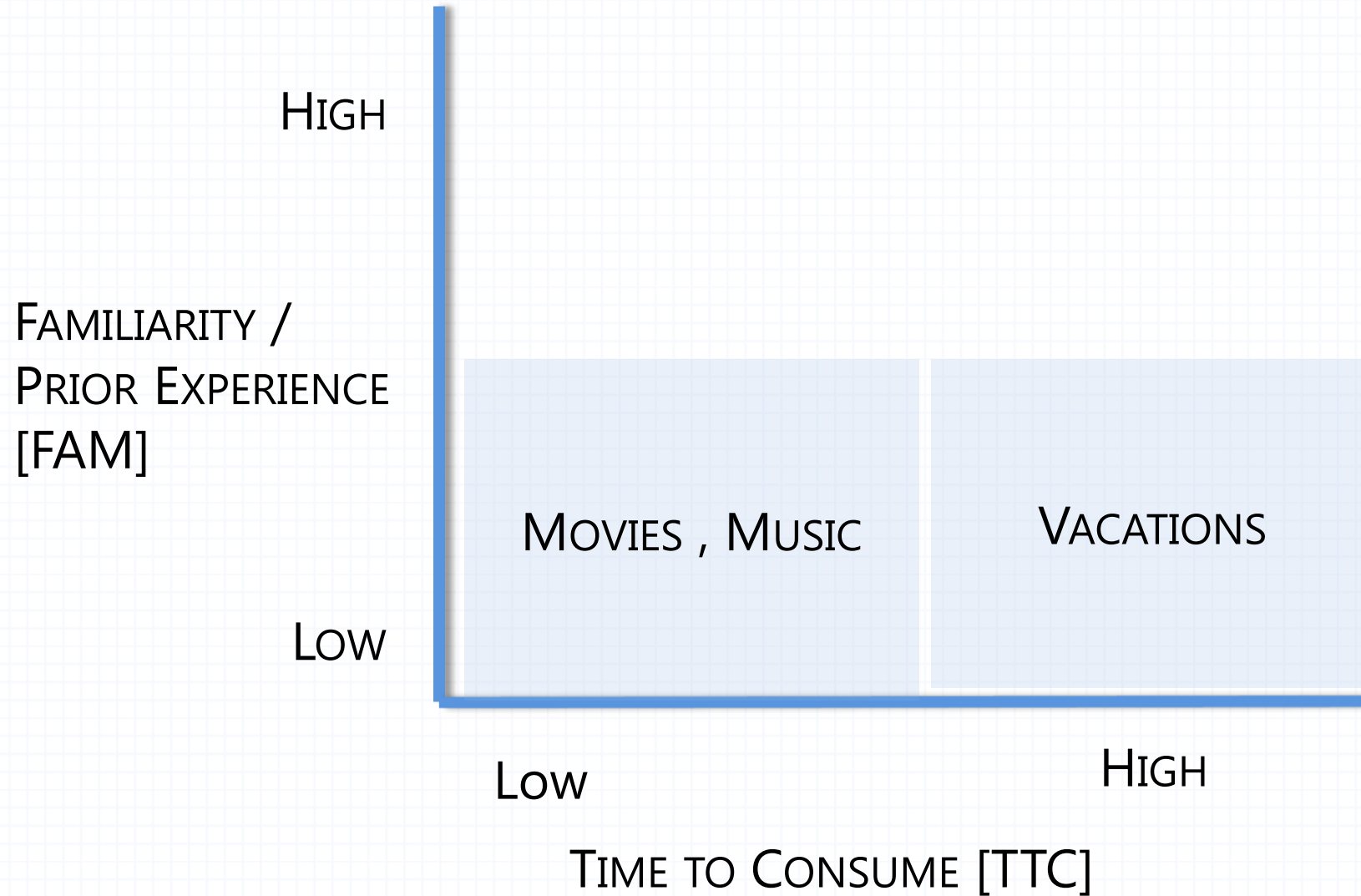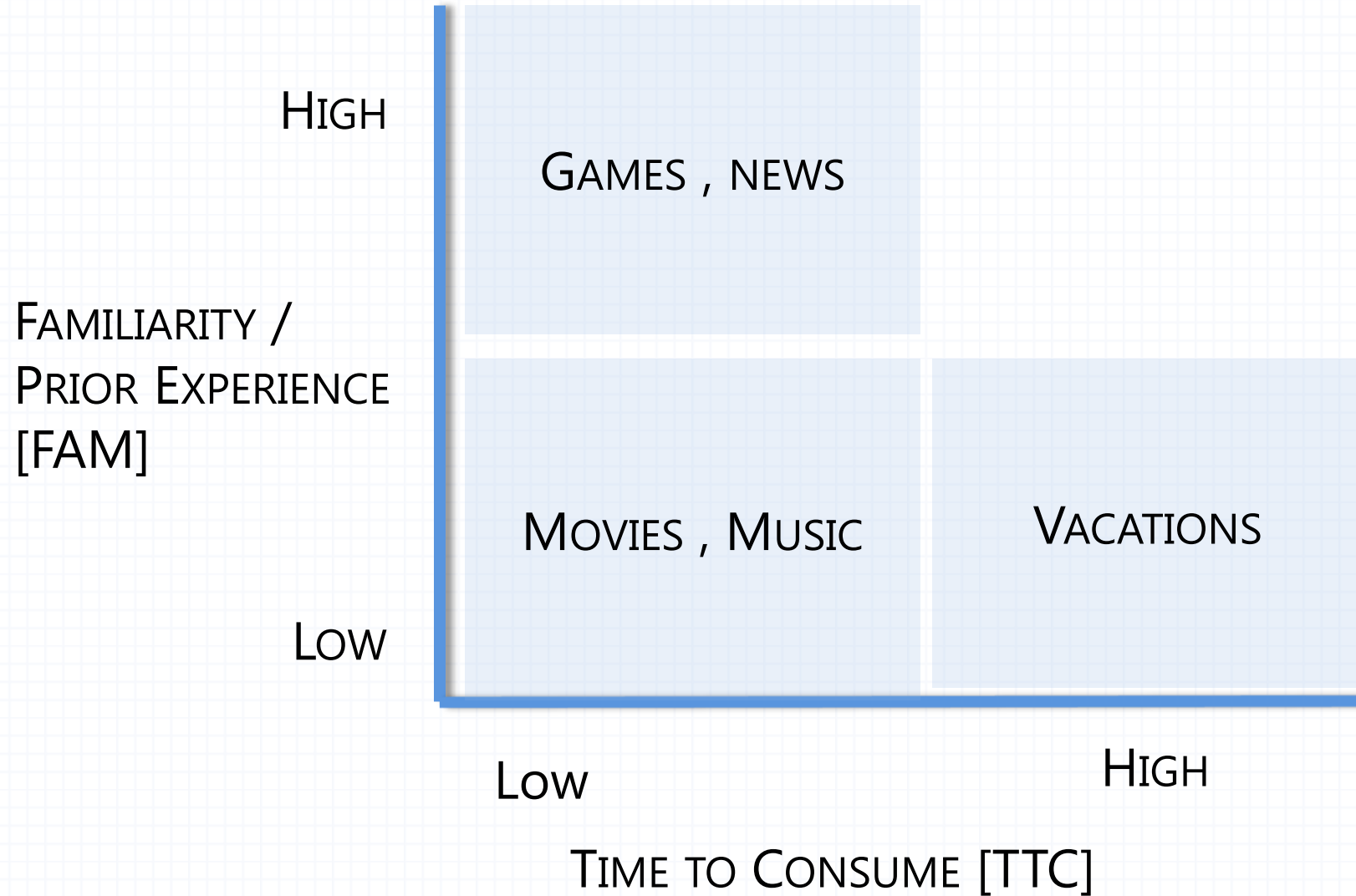
Decision Grid

Decision Grid

DECISION GRID

Familiarity / Prior Experience [FAM]

High

Low

| Movies , Music | Vacations |

Low   High

Time to Consume [TTC]

DECISION GRID

HIGH

GAMES , NEWS

FAMILIARITY /
PRIOR EXPERIENCE
[FAM]

MOVIES , MUSIC   VACATIONS

LOW

LOW   HIGH

TIME TO CONSUME [TTC]

DECISION GRID

Familiarity / Prior Experience [FAM]

High — Games, news | Books

Low — Movies, Music | Vacations

Low   High
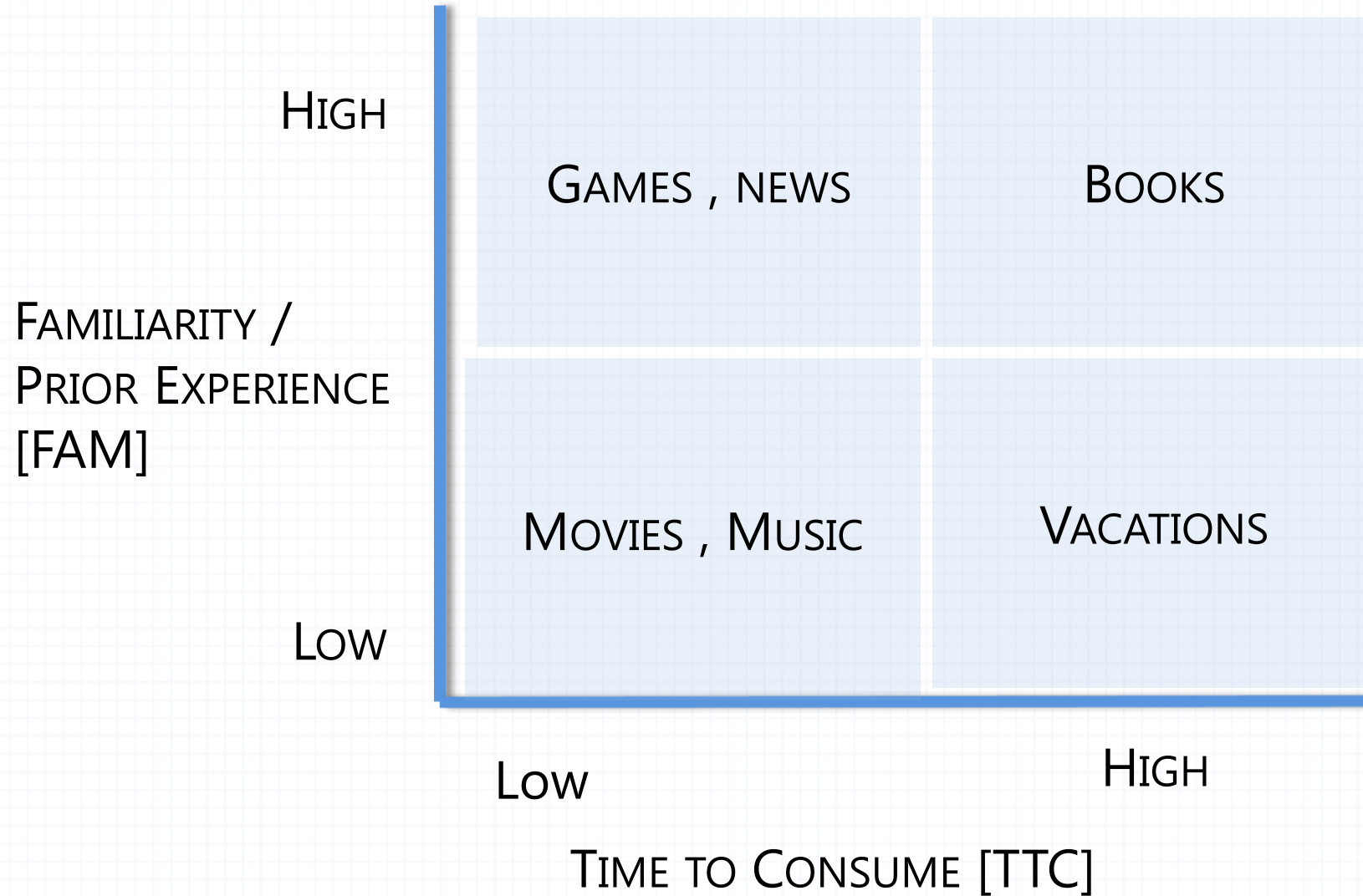
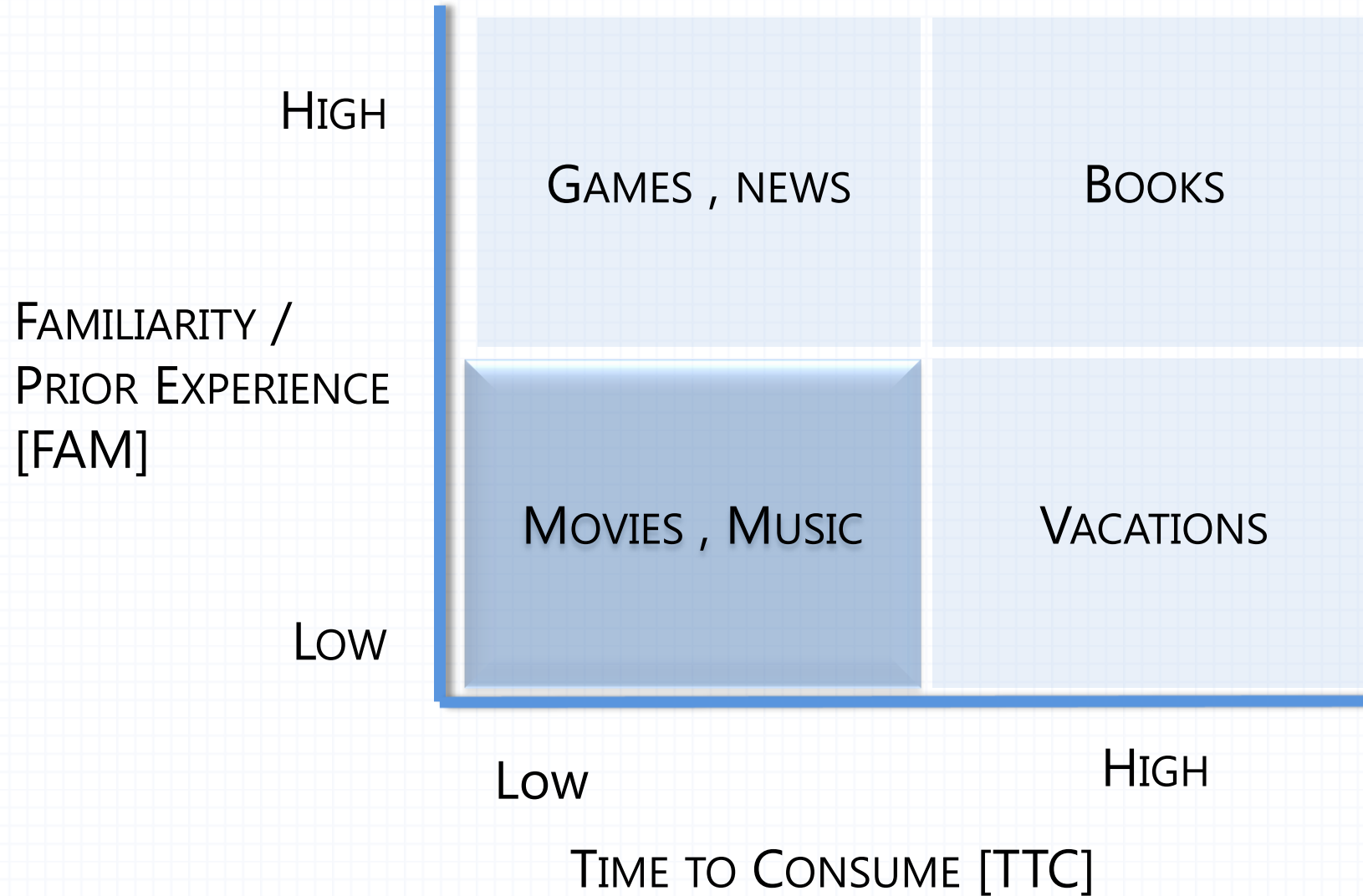Time to Consume [TTC]

OUR PROPOSITION

Domains where time to consume [TTC] the product is high , Mood based recommender systems cannot be used as mood changes with time.

OUR PROPOSITION

Domains where Familiarity [FAM] required to enjoy the product is high and time to consume is Low [TTC] mood should not be used

EXPERIMENTAL EVALUATION OF PROPOSITION

Domains where Familiarity [FAM] required to enjoy the product is high and time to consume [TTC] is Low mood should not be used

We conducted an experiment to check if mood affected games selection. Games falls into the category of domain where FAM is high and TTC is low.

EXPERIMENTAL EVALUATION OF PROPOSITION

- Fifty nine students from undergraduate courses and doctoral courses of our institute participated in the experiment.

- Participants first completed a brief questionnaire assessing their current mood state with the scale 1 (not at all) to 5 (extremely), and then wrote the name of the online game they choose to play on the online gaming website.

EXPERIMENTAL EVALUATION OF PROPOSITION

- Their mood was first captured through a questionnaire the consisted of 16 mood related keyword (based on PANAS-X inventory) . Watson & Clark (1994)

- The 16 mood states included in their study were positive (happy, excited, interested, proud, confident), negative (afraid, nervous, angry, sad, lonely, dissatisfied with self) and other-affective states (sleepy, tired, relaxed, surprised, calm).

EXPERIMENTAL EVALUATION OF PROPOSITION

- The online gaming website used in this study is Shockwave.com

- We further characterized the Shockwave categories into following three: fast-paced games, medium-paced games and slow-paced games.

Findings

- User's mood state (happiness) doesn't affect the game selection . (p-value is 0.529 > 0.05).

- User's mood state (tiredness) doesn't affect the game selection (p-value is 0.768 > 0.05).

- User's mood state (positive, negative or other) doesn't affect the game selection (p-values are 0.686 > 0.05, 0.626 > 0.05, & 0.507 > 0.05 respectively).

FINDINGS

- User mood states does not affect games selection.

- One possible explanation is that users are more likely inclined to play games that are their favorites or the ones they are familiar with irrespective of their mood

CONTRIBUTION

- We provide a decision grid that can help recommender systems designers decide for which domains should mood states be considered.

- To validate our decision grid we provide the result of an experiment conducted by us that shows that online games selection is not impacted by user mood state.