# LITERATURE REVIEW

**Information Collection Phase**

In this phase a user's relevant information is collected to develop a user profile or model based on the user's characteristics, behaviors, and the content of the resources they have browsed, which are applicable in prediction phase tasks. The accurate functioning of a recommendation agent depends on the proper construction of a user profile or model. The system can offer a quick yet appropriate recommendation when it has all the required information about the user. Thus, the success of a recommendation or recommender system largely depends on the ability of the model to denote users' current preferences or choices [57,62,63].

The foundation of the recommendation system relies on three types of input suchas explicit feedback, implicit feedback, and hybrid feedback. Explicit feedback needs to be of high quality as it encompasses users' explicit input regarding their interest in or choice of a product. The accuracy of the prediction or recommendation relies on user ratings. Therefore, if the users do not provide enough information, it limits the accuracy of the system. Despite this requirement, explicit feedback is still considered a crucial information input process as it provides more reliable data and builds transparency into the recommendation procedure [57,64,65]. Implicit feedback is also important in understanding users' preferences, which are inferred indirectly through observation of user behavior. Although this method does not require the same effort from the users, it is often seen as less accurate [57,66]. Hybrid feedback is considered a combination of explicit and implicit feedback. It can be accomplished by utilizing the implicit feedback data as a check on the explicit feedback rating or by providing users with the opportunity to give feedback only if they choose to explicitly express their interest.

**Learning Phase**

A learning algorithm is applied in this phase to filter and exploit the users' features based on the feedback collected in the information collection phase. The learning algorithms used in this phase are helpful for drawing out the appropriate patterns relevant for application during the recommendation stage [57,62,63].

**Recommendation Phase**

The recommendation phase recommends the types of items that a user or consumer may prefer. Recommendations can be provided either directly based on the dataset collected during the information collection phase (which might be memory- or model-based) or through the browsing history of users observed by the system [57,62,63]. Recommendations can also be provided by combining the learned information with the rating matrix to recommend learning resources [67]. Researchers reported improved recommendation accuracy using hybrid models in comparison with product content-based or other user-preference-based collaborative models [68].